

Docket No. 114953.800 US3

*Application
for
United States Patent*

To all whom it may concern:

Be it known that I,

Irah H. Donner,

have invented certain new and useful improvements in

***SYSTEM AND METHOD FOR REALLOCATING AND/OR UPGRADING AND/OR
SELLING TICKETS, OTHER EVENT ADMITTANCE MEANS, GOODS AND/OR
SERVICES***

of which the following is a full, clear and exact description:

SYSTEM AND METHOD FOR REALLOCATING AND/OR
UPGRADING AND/OR SELLING TICKETS, OTHER EVENT
ADMITTANCE MEANS, GOODS AND/OR SERVICES

5

Related Applications

This application is a continuation-in-part application of, and claims priority to, U.S. application serial number 09/910,821 filed on July 24, 2001 and entitled "SYSTEM AND METHOD FOR REALLOCATING AND/OR UPGRADING AND/OR REWARDING TICKETS, OTHER EVENT ADMITTANCE MEANS, GOODS AND/OR SERVICES," which in turn claims priority to both U.S. provisional application serial number 60/220,218 filed on July 24, 2000 and entitled "SYSTEM AND METHOD FOR REALLOCATING AND/OR UPGRADING TICKETS OR OTHER EVENT ADMITTANCE MEANS", and U.S. provisional application serial number 60/226,594 filed on August 21, 2000 and entitled "SYSTEM AND METHOD FOR REALLOCATING AND/OR UPGRADING TICKETS OR OTHER EVENT ADMITTANCE MEANS", and the details of all the above applications are hereby incorporated by reference.

25

Field of the Invention

The present invention relates generally to purchasing and provisioning items or services online for reallocating and/or upgrading and/or rewarding tickets and/or other goods/services, and more particularly, to a system, method, and computer readable medium storing computer-executable instructions for upgrading, reallocating, purchasing, and/or being rewarded items or services including event tickets, concessions, and/or merchandise over a data communication network and provisioning these purchases for, for example, reallocating and/or upgrading tickets.

Provisioning, as defined herein, includes in whole or in part, the process of effectuating and/or facilitating the processing of a transaction, including, for example, the sale and/or transfer and/or reallocation of tickets, goods, services, and the like, for movies, theatre, shows, sporting events, cultural events, and other non-event related purchases, services, and the like.

Background Of The Invention

U.S. Patent 6,052,629 to Leatherman et al. (Leatherman), incorporated herein by reference, is directed to an Internet capable browser dispenser architecture. As shown in prior art FIG. 1 (FIG. 1 of Leatherman), the system of Leatherman includes a plurality of fuel dispensers 12, each having at least two fueling positions and acting as a point of sale (POS) interface. Connected to the fuel dispensers 12 is a main service station store 16, a local server 18, a convenience store 20, a number of restaurants 22, and a car wash 24, as well as other remote servers 26 via the Internet.

Basically, the system of Leatherman provides gas station customers with access to a server on a local network and remote sites via the Internet. With this arrangement, the gas station customers may purchase services at the POS dispensers and be subject to advertisements transmitted thereto.

However, while Leatherman discusses purchasing items at a gas station, it makes no disclosure of effectively provisioning and/or performing transactions in the entertainment and/or ticketing industry.

U.S. Patent 5,618,045 to Kagan et al.
(Kagen), incorporated herein by reference,
relates to an interactive game system. As
5 depicted in prior art FIG. 2 (FIG. 1 of Kagen),
the interactive game system 610 of Kagen includes
three playing devices 612, 614, and 616, which
communicate via a wireless local area network.
Communication is effected utilizing short-range
10 radio, infrared, or ultra-sonic signals. As
shown in prior art FIG. 3 (FIG. 2 of Kagen), each
playing device includes a processor 718, an
interface 720, a transmitter 722, a receiver 724
and a display 726. Using these components, a
15 player's actions are transmitted to and received
by another player's playing device.

U.S. Patent 5,636,920 to Shur et al. (Shur),
incorporated herein by reference, relates to a
20 sports team organizer. In prior art FIG. 4 (FIG.
1 of Shur), a portable computing device for
organizing a sports team includes an input device
812, a processor 814, a memory 816, a number of
stored programs 818, and an output device 820.
25 With these elements, the organizing system allows

a team roster, a starting lineup, and a number of drills to be generated.

U.S. Patent 5,647,795 to Stanton (Stanton), incorporated herein by reference, relates to portable computerized pari-mutuel sports entertainment system. In prior art FIG. 5 (FIG. 1 of Stanton), the system includes a computer 911 and conductor 916, a video cassette recorder 912 with video tape 917, a television set 913, keypads 914, and printers 915. The computer 911 operates as a main computing server, and includes a motherboard 920, a memory card 921, and a number of graphics and other serial cards 922, 923, and 924. With this system, bets are entered from remote locations with keypads 914 and stored in computer 911. After a race, winnings are collected at the cashiers' windows (keypads 914).

The above cited patents are relevant from the perspective that wireless devices are gaining more popularity in today's society.

U.S. Patent 5,794,207 to Walker et al. (Walker), incorporated herein by reference, relates to a method and apparatus for a cryptographically assisted commercial network system designed to facilitate buyer-driven

conditional purchase offers. In prior art FIG. 6 (FIG. 1 of Walker), the system includes seller interfaces 300, central controller 200, and buyer node 400. A number of modems 350 and 450 facilitate connection to central controller 200. Using these components, a buyer communicates a binding purchase offer to a number of sellers. In response, the sellers have the option to accept a purchase offer and thus bind the corresponding buyer to a contract. Nevertheless, Walker makes no mention of allowing redemption of the purchases at a point of sale location upon identification or verification of the purchaser or of the purchase.

FIGS. 7-9 show a prior art radio frequency (RF) transmission system 100, as disclosed in U.S. Patent No. 5,819,172, incorporated herein by reference, for transmitting information from one of a plurality of originating processors A-N to at least one of a plurality of destination processors (A-N) which may be transported during operation. The system 100 includes at least one gateway switch 150 that stores information received from one of the at least one originating processor prior to transmission of the information to the at least one destination processor; a RF information

transmission network 130 for transmitting stored information received from one of the at least one gateway switch 150 by RF transmission to at least one destination processor; and at least one
5 interface switch 162 that connects a gateway switch 150 to the RF transmission network 100 and transmits stored information received from one of the at least one gateway switch 150 to the RF information transmission network 100.

10 The information is transmitted to a receiving interface switch by the electronic mail system in response to an address of the receiving interface switch which has been added to the information originated by the originating processor by either
15 the originating processor or gateway switch 14. The information is transmitted from the receiving interface switch to the RF information transmission network 130 with an address of the destination processor to receive the information
20 which has been added by either the originating processor, a gateway switch or the receiving interface switch.

25 More particularly, FIG. 8 illustrates a block diagram of the connection between a plurality of gateway switches with mailboxes 150 in different electronic mail systems to the RF information

transmission network 160. Multiple gateway switches with mailboxes 150 from a single electronic mail system 1-N may be connected to each interface switch 162 instead of the 5 connection of a single gateway switch with a mailbox to a single interface switch as illustrated. A plurality of interface switches 162 connect information transmitted from at least one electronic mail system as illustrated in FIG. 7.

10 Optionally, a plurality of electronic mail systems 1-N are connected to a data input port of the RF information transmission system which is preferably hub switch 116. The dotted line communication paths 163 illustrate optional 15 information transmissions in which information from a plurality of different electronic mail systems is concentrated at a single interface switch 304. The dotted line communication paths 161 illustrate connections to additional gateway 20 switches with mailboxes 150 within electronic mail systems 1-N.

The interface switches 162 function as a security check to determine that information transmissions originating from a gateway switch 25 with mailbox 150 represent transmissions which should be coupled to a hub switch 116 of the RF

information transmission network 160. The security check is performed by the interface switch 162 comparing the identification number of the RF receiver 119 which has been added by either an originating processor A-N or a gateway switch with mailboxes 150 with permissible identification numbers or the interface switch performing the addition of the identification number.

The interface switch 162 also removes information added by the electronic mail system 1-N to the information originated by the originating processor A-N from the stored information received from one of the gateway switches 14, and adds information used by the RF information transmission network 130 during transmission of the information originated at the originating processor to a RF receiver 119 in the RF information transmission network 130 which receives the information and transfers it to the destination processor A-N. Additionally, the interface switch 162 encodes data, which is required to format the display of the cathode ray tube (CRT) of the destination processor for the electronic mail system to which the destination processor is connected, in the form of a character or characters which are decoded by either the RF

receiver 119 or the destination processor A-N. This information is added in decoded form back to the information which is processed by the destination processor with a format of the electronic mail system to which the destination processor A-N is connected.

5 The interface switches 162 also function to store information which has been stored by at least one gateway switch 150 that is received from a plurality of originating processors, and 10 assemble the information from a plurality of originating processors into a packet having a predetermined format and transmit the packet to the hub switch 116 within the RF information 15 transmission network 160. The hub switch is the preferable node in the RF information transmission network to which communications from the gateway switches 150 should be transmitted as a consequence of it having jurisdiction over both 20 local access and transport area (LATA) switches 150 and the local switches 112 in the RF information transmission network, which results in lesser network overhead.

25 The hub switch 116 receives the packet from the receiving interface switch 162 and disassembles the packet into information from the

plurality of originating processors. The originating processors are either within a single electronic mail system such as system 1, or from a plurality of electronic mail systems, such as 5 systems 1-N, or from outside of any electronic mail system from at least one additional processor 312 which is connected directly to interface switch 162 to originate information to be transmitted to a destination processor A-N in an 10 electronic mail system as described below. The RF information transmission network 130 transmits the disassembled information from the hub switch 116, including the identification number of the RF receiver 119 transferring information, to the 15 destination processor A-N to a local switch 112 storing the file identified by the identification number and any destination of the RF receiver in the RF information transmission network to which the information and identification number is to be 20 transmitted by the RF information transmission network, and adds any destination of the RF receiver to the information. The RF information transmission network, in response to any added destination, transmits the information and 25 identification number to the destination for RF

broadcast to the RF receiver 119 for transfer to the destination processor A-N.

The information is transmitted to a receiving interface switch 162 from one or more gateway switches 150 by one or more electronic mail systems 1-N in response to an address of the receiving interface switch which has been added to the information originated by the originating processor by either the originating processor or gateway switch. The information is transmitted from the receiving interface switch 162 to the RF information transmission network with an address of the destination processor, such as a name of a user of the destination processor A-N, to receive the information which has been added by either the originating processor A-N, a gateway switch 150 or the receiving interface switch 304.

Preferably, the address of the receiving interface switch is a code word, such as "TF-MOBOX", which is recognized throughout the electronic mail system when appended to information as directing the information to be transmitted to the interface switch 304. The address of the destination processor is preferably the identification number of the RF receiver 119 within the RF information transmission network

160. The address of the receiving interface switch
may be added to the information originated by the
originating processor, by a gateway switch 150 or
by the originating processor A-N. The address of
5 the receiving interface switch 162 may be added to
the information by matching an identification of
the destination processor A-N which may be the
name of the individual utilizing the processor or
some other information to add an address of an
10 interface switch such as the aforementioned "TF-
MOBOX" stored with the matched identification of
the destination processor to the information as
the address of the receiving interface switch.

Alternatively, the originating processor may
15 be used to add the address of the receiving
interface switch 150 by inputting the address of
the receiving interface switch (TF-MOBOX) along
with an identification of the destination
processor A-N (name of recipient using the
20 processor).

The originating processor A-N may also add
the address of the receiving interface switch 162
by matching an identification of the destination
processor (name of the user of the processor) with
25 a stored identification of a destination processor
and adding an address of the interface switch (TF-

MOBOX) stored with the matched identification of the destination processor to the information as the address of the receiving interface switch.

The identification number may be added to the
5 information originated by the originating processor or, alternatively, maybe added by the originating processor by matching an identification of the destination processor (the name of the user of the processor) with a stored
10 identification of a destination processor (the authorized user of the destination processor) and adding an identification number stored with the matched identification of the destination processor to the information as the identification
15 number of the RF receiver 119. Alternatively, the aforementioned matching process may be performed by either the gateway switch 150 or the interface switch 304. The additional processors 312 originates information from outside of any
20 electronic mail system.

Processors 312 provide an address of at least one destination processor in an electronic mail system, such as the name of the user, to receive information transmitted by the RF information
25 transmission system 160, or an identification number of the RF receiver 119 receiving

information and transferring the information to the destination processor. The interface switch 162 which receives the information from each processor 312 adds information used by the RF 5 information transmission network 130 during transmission of the information to the RF receiver 119 receiving the information in the same manner as described above with respect to the interface switch 304.

10 Processors 312 are only required to have a telephone modem and support programming to format information for RF transmission to a destination processor A-N within any one of one or more electronic mail systems 1-N. The processors 312
15 are not required to have the necessary electronic mail system software present in originating processors A-N or interconnections with an electronic mail system. As a result of the connection to the interface switch 304,
20 information originating from the additional processors 312 may be transmitted by RF transmission to a destination processor A-N within any one or a plurality of electronic mail systems with the user of the processor 312, the processor
25 312 or the interface switch 162 only having to supply an identification number of the receiver

119 to input information into the RF information transmission system 130 for RF transmission to a destination processor.

The difference between originating
5 information by one of the additional processors
312 outside of any electronic mail system and
originating information by one of the processors
within one of the electronic mail systems is that
the direct connection of the additional processor
to the interface switch 162 eliminates the
requirement for the adding of an address of the
interface switch 162 which is required by the
electronic mail systems to forward the information
to the interface switch where necessary formatting
10 of the information to be compatible with the RF
information transmission system is performed. The
interface switch 162 packetizes information
originating from the additional processors 312 in
the same manner as described above with respect to
15 information originating from within an electronic
mail system.

Information from within an electronic mail
system and originating from additional processors
312 outside of the electronic mail system may be
20 formatted into the same packets which are
25 forwarded to the hub switch 116. Additionally,

interface switch 162 may be connected only to the additional processors 312 to provide an interface only for processors outside of any electronic mail system to destination processors A-N within one or 5 more electronic mail systems 1-N. The only information which is necessary to be inputted by the additional processors 312 is the address of the destination processor (user of the processor). The addition of the identification number of the 10 receiver 119 may be added by matching of an identification of the destination processor with stored destination processors within the additional processor 312, or the interface switch 162 with an identification number of the receiver 119 stored with an identification of a destination 15 processor A-N used as an identification of the destination processor upon a match having been made.

Prior art FIGs. 7-9, however, do not 20 generally relate to, for example, providing an integrated or combination real time and polled electronic messaging system, method and/or a computer readable medium storing computer-executable instructions for enabling e-mail 25 messages and/or other data messages and/or services to be transmitted and/or received via a

wireless communications device on either a real time and/or polled basis

In recent years, technological advance and consumer demand together have made wireless messaging and related services (e.g., eLinkSM provided by Motient Corporation, Reston, VA) increasingly popular. These services allow users to, for example, send and receive e-mail messages, as well as provide other messaging services such as paging and faxing. Such e-mail messages are generally received on either a polled or real time basis, where the user has to select the preferred delivery method.

In a polled delivery scheme, the user's existing Internet e-mail account is "extended" via a wireless communications device. For example, in the case of eLinkSM, messages are retrieved from, for example, a Post Office Protocol 3 (POP3) or Internet Messaging Access Protocol 4 (IMAP4) server and forwarded to a user's wireless device. Using a wireless device, users can access their Internet mailbox either automatically by, for example, setting one or more times at which they wish to receive their messages, or manually by, for example, clicking a "Get Messages" or similar icon. Other ways of accessing the mailbox are also

optionally possible. In a real time delivery scheme, user's are generally provided a new, unique e-mail address, which obviously provides the user with an e-mail account that is separate from their desktop e-mail account. For example, in the case of eLinkSM, user's are provided a unique e-mail address having the form <username>@2way.net. Other message forms and/or domain names may also optionally be utilized. Such wireless schemes also generally allow users to respond to e-mails in a way such that they appear as though they are originated from the user's e-mail system residing on their desktop PC.

Accordingly, the above prior art is cited as background, none of which relates to the reallocating and/or reprovisionsing and/or upgrading and/or rewarding of tickets at events or other goods and services as described in connection with the detailed description below.

Summary of the Invention

Driven by a widespread understanding of the Internet's capabilities, the power of electronic commerce, and advances in wireless technologies

and devices, mobile commerce (m-commerce) is rapidly approaching the business forefront. According to independent research findings, m-commerce—the conduct of business and services over portable, wireless devices—will soon be a dominant force in business and society. For example:

- IDC, an information technology research firm, 10 reports that 70 percent of all wireless subscribers worldwide will access data applications via their phones by 2002.
- The investment firm Robinson Humphrey predicts 15 that, in the US, 50 percent of Internet hits will originate from wireless devices by 2004.
- The Yankee Group, a telecommunications research firm, projects that by 2004 more than 40 percent 20 of wireless users in the US will access Internet content directly from their mobile devices.

The viability of these projections depends on the power of the underlying technology drivers and the 25 attractiveness of m-commerce applications. To compete in a marketplace dominated by wireless

devices, businesses must devise effective m-commerce strategies. Building successful strategies begins by recognizing the forces driving m-commerce's emergence.

5

The US Federal Communication Commission's auctioning of personal communication-service spectrum space in the mid-1990s triggered the current rush to wireless communication methods. 10 Wireless communication now encompasses not only telephones but appliances, including personal digital assistants (PDAs).

Internet use has grown on the strength of PC networks. According to Yankee Group projections, 15 the installed base of PCs will reach 500 million by 2003, as FIG. 10 shows. This huge base is essential to continued growth in electronic commerce and other communications applications. 20 Moreover, because these systems will have greater power and storage capability, as well as the best ever price-performance ratios, more powerful and sophisticated applications will likely emerge for desktop computing and the Internet.

25

Although these expectations are impressive, PCs still have two limiting characteristics. First, users must sit in front of them. Second, even portable-notebook PCs have to load software, dial into and connect with a network service provider, and await completion of the handshaking process before they can launch an Internet application.

5 This sequence is understandable, but at best it seems a tolerable nuisance. Hence, the dominant applications are still those that are worth the trouble it takes for a user to follow this access sequence or, at least, to keep the computer and applications running.

10

15 The aggregate PC installation is substantial, but even more mobile communication devices are in use. The Gartner Group and other research firms project that by 2004, the installed base of mobile phones worldwide will exceed 1 billion more than twice the number of PCs. In addition, the number of other wireless mobile devices will also increase dramatically. Wireless PDA use will more than triple in the next three years. Unlike PCs, these wireless devices require no boot sequence,

20

25 so people can use them as soon as they turn them

on-making them attractive for quick-hit applications.

Just as the transmission control
5 protocol/Internet protocol and the general purpose browser were principal drivers of Internet growth, letting disparate devices interconnect and communicate, similar factors will simplify the interconnectivity and communication of heterogeneous wireless devices. As FIG. 11 shows, mobile network carriers have relied on a variety of incompatible wireless access standards. Recently, however, a common communications technology and uniform interface standard for presenting and delivering wireless services on
10 mobile devices-wireless application protocol (WAP)-have emerged.

WAP specifications include a microbrowser;
20 scripting similar to JavaScript; access functions; and layered communication specifications for sessions, transport, and security. These specifications enable interface-independent and interoperable applications. Most wireless handset and device manufacturers, as well as several
25

service and infrastructure providers, have adopted the WAP standard.

5 Current access technologies, including TDMA (time division multiple access), CDMA (code division multiple access), and GSM (Global System for Mobile Communication), transmit at 9.6 to 19.2 Kbps. These speeds are dramatically slower than the dial-up rates of desktop PCs connecting to the
10 Internet. Although m-commerce is possible at these bandwidth rates, the slow speeds are not conducive to creating widespread business or consumer participation.

15 3G (third-generation) wireless technology will also be available. In addition to having greater bandwidth rates, with speeds up to 2 Mbps, 3G will support multimedia transmission. Integrating voice, data, and one- or two-way video will let
20 m-commerce run over any wireless device.

25 M-commerce applications fall into three main categories: transaction management, digital content delivery, and telemetry services. Users will increasingly initiate a wide range of business transactions from mobile devices. Online

shopping sites tailored to mobile phones and PDAs including browsing, selection, purchase, payment, and delivery-have already emerged. These sites include all the necessary shopping features, such as online catalogs, shopping carts, and back office functions. Online booksellers are among the firms that have already implemented wireless shopping transactions. Another class of m-commerce transactions involves using wireless devices to initiate and pay for purchases and services in real time. These kinds of transactions will likely increase as users gain the capability-and become comfortable enough-to manage them. The highest m-commerce transaction volume will probably occur in micro transactions. When individuals reach for their e-cash-equipped mobile phones or PDAs-rather than coins-to settle transactions such as subway fees, widespread use of digital cash will be a reality.

20

Digital content delivery uses the wireless channel's distribution characteristics. These m-commerce activities include information browsing-instant retrieval of status information (weather, transit schedules, sports scores, ticket availability, and market prices)-and directory services. The CNN Wireless news subscription service and the UPS PDA-linked package tracking and locator service are representative of emerging content delivery services.

Digital products easily transport to and from wireless devices. Hence, downloading entertainment products-for example, MP3 music-is likely to become even more commonplace when 3G arrives. Transferring software, high resolution images, and full-motion advertising messages will also become common activities. The emergence of high-quality display screens and greater bandwidth will undoubtedly trigger the development of innovative video applications. Individuals will use wireless devices to access, retrieve, store, and display high-resolution video content for entertainment, product demonstration, and distance learning.

The transmission and receipt of status, sensing, and measurement information-telemetry services-form the basis for a wide range of new applications involving mobile devices.

5 Innovations in this area let people use wireless phones and appliances to communicate with various devices from their homes, offices, or in the field. For instance, delivery drivers will "ping" intelligent dispensing machines or store computers to determine where their rolling inventory is needed most or which locations need immediate service. Similarly, users will transmit messages to activate remote recording devices or service systems.

10

15 Active m-commerce applications function only when someone directly initiates them by transmitting payment details, requesting information, receiving specific content, or

20

retrieving status information. In contrast, passive applications occur without the user taking any action-for example, the automatic collection of toll charges with dedicated cash cards.

25

Integrating digital cash into mobile devices would make these cash cards unnecessary. These wireless devices would facilitate and record payment of

toll, mass-transit, fast-food, and other transactions without the user authorizing or entering identification information for each individual transaction. Users could arrange to have their cash chips update automatically by directing the wireless device to contact their money source and download additional digital cash whenever necessary.

10 Popular in Europe, short messages text messages, up to 160 characters in length, that show up on the recipient's display as they arrive-are examples of passive content delivery. As digital convergence becomes more commonplace, 15 all forms of mail will passively go to wireless devices, including digitized voice mail, fax documents, and e-mail. Passive security, intrusion, and emergency telemetry services will refine the monitoring of facilities and 20 individuals. Any unusual event or unacceptable condition will trigger user notification, regardless of location. Airlines are testing technology that will let them alert passengers, especially frequent fliers, to seat upgrades, 25 schedule changes, and so on, through wireless devices. Some airlines already have prototype

telemetry systems that transmit this kind of information to passengers as soon as they enter the airport or pass near a kiosk-like device.

5 Passive m-commerce telemetry is the foundation of still another form of interactive marketing. Stores will be able to market their products and services by transmitting promotional coupons and messages to passers by: "Come in and enjoy a
10 complimentary cup of our new coffee blend," or "Get half off, if you make your purchase within the next 30 minutes." This type of marketing may give rise to a new challenge: managing m-junk messages without turning off your wireless device.

15 The technology to facilitate m-commerce is within reach, even as barriers to its development fall away. Applications and wireless devices promise to evolve together, each driving the
20 introduction of innovative and powerful features in the other. The opportunity and challenge is for business to develop strategies that capitalize on the strengths of mobile commerce, thereby helping it to compete in an increasingly digital
25 marketplace. The greatest challenge to structuring such a strategy may be creating the

innovations that will meet the needs and expectations of consumers and commercial participants. Additional details regarding the above may be found in James A. Senn, *The Emergence of M-Commerce*, IEEE COMPUTER (December 2000), incorporated herein by reference and all references cited there incorporated herein by reference.

Mobile device and computer users increasingly face the management of many computing devices.

One reason is the expansion of computing environments in the home and office, as printers, scanners, digital cameras, and other peripherals are integrated into networked environments.

Another reason is the proliferation of mobile devices such as laptop and palm-sized computers, cellular phones, and pagers. Because these devices trade functionality for suitable form factors and low power consumption, they are

necessarily "peripheral-poor" and must therefore establish connections to neighboring devices for storage, faxing, high-speed network access, and printing. It is easy to become frustrated when dealing with the configuration and interaction of such a multitude of devices. Service discovery technologies were developed to reduce this

frustration and to simplify the use of mobile devices in a network by allowing them to be "discovered," configured, and used by other devices with a minimum of manual effort. Although 5 most of these "service discovery suites" promise similar functionality•namely, reduced configuration hassles, improved device cooperation, and automated discovery of required services•they come at the problem from different 10 philosophical and technical approaches. Since none of these technologies is a superset of the others and none is mature enough to dominate the market, interoperation among them will require bridging mechanisms. Five competing technologies 15 are described that may be used in conjunction with the present invention, however, other technologies may also or alternatively be used.

Thus, to address the above and other needs of 20 the prior art, it is a feature and advantage of the present invention to provide users with the ability to be awarded, reallocated, upgraded and/or reprovisioned purchase items including tickets and concessions and/or other merchandise 25 and/or services online. By doing so, the present invention allows these users to proceed directly

to the event and/or receive the goods and/or services, thereby bypassing any box offices. In addition, the present invention allows purchases of a variety of items such as movie tickets,
5 concessions, movie merchandise, and/or other goods or services using the processes and architecture described herein or other standard platforms. The present invention facilitates these purchases and the subsequent provisioning thereof by utilizing
10 an identification device associated with a user's account which, in turn, is readable by a reader at a point of sale location for verifying the purchases made by the user. The identification device can be, for example, a smart card and/or wireless device with infrared and/or bluetooth enabled, or other standard wireless device,
15 including those described herein.

It is also another optional feature and advantage, alone or in combination with one or more other features, of the present invention to facilitate the provisioning of demographic information to program sponsors. By having each user register demographic information such as age and interests during, for example an
20 initialization process, the present invention compiles information for advertising and marketing
25

use. Using this information, the present invention allows event sponsors to create custom offerings to users. Similarly, the invention allows a sponsor to leverage user and market information to create programs that address evolving user needs for targeting and acquiring new customers.

It is another optional feature and advantage of the present invention to provide marketing opportunities for the events themselves and/or event related merchandise at an entertainment site. This allows users to shop for tickets, concessions, and event-related merchandise at a single time and location.

It is yet another optional feature and advantage of the present invention to apply these concepts to a wide variety of venues such as movies, concerts, sporting events, cultural activities, reserved seating events, events requiring advanced ticket purchase, and/or other similar and analogous events or settings where goods and/or services can be sold, including upgraded, awarded and/or reprovisioned.

To accomplish the above and other features, in one embodiment of the present

invention, a user first visits a leading portal, for example, Yahoo!, and selects an event and a desired time. Next, the user is linked to a server, where he or she purchases a ticket and/or concessions and other merchandise with, for example, a credit card, in a secure transaction.

5 The event ticket is then transferred to the user's account, which in turn is associated with a smart card and/or wireless device in the possession of the user. With the smart card/wireless device in hand, the user avoids any box office lines and proceeds directly to an attendant or a point of sale (POS) server or system. The user then presents the smart card to the attendant or POS

10 who reads the smart card using a reading device. After reading the smart card, the attendant or POS accesses the user's account and verifies that a ticket has indeed been purchased before admitting the user. Once the user is at the event, as

15 described below, the user has the functionality to be upgraded, reallocated and/or rewarded tickets.

20 For example, in one embodiment of the invention, the process begins as all tickets are checked in, for example, as the patrons enter the reserved seating area, such as a stadium or theater, through, for example, bar code readers,

scanners, infrared readers, and/or manually or other method where the patron is checked in, either at the gate, seat or other location. For example, patrons can optionally check in a
5 predetermined time before the event through a wireless device, Internet connection, manual or voice recognition telephone, or other manner. The important point is to provide a standard manner for allowing patrons to check in, and if
10 the patron fails to check in using a predetermined procedure to allow that seat to be provided to another willing patron in accordance with a process to be described below.

15 The patron may check in either a predetermined time before or after the event begins. Currently, such a process is impossible and unthinkable in view of the difficulty reserved seating events have in simply getting
20 the patrons seated prior to the beginning of the event. The present invention represents a revolutionary process to enhance event enjoyment, earn patron loyalty and optionally provide additional revenues to the theater/stadium or
25 optionally other patrons with the desirable ticket.

The check in procedure continues for a predetermined period of time until a predetermined time period has expired, for example, 5 minutes before the event begins, 10 minutes after the event begins, after a predetermined event, such as the second act of a play, and the like. Once the predetermined time period or event has been completed, the check in procedure may be considered completed to begin the seat re-allocation process. To begin the seat re-allocation process, a re-allocation algorithm is used to re-assign seats for patrons that are willing or interested in different or better seats. Such re-allocation processes or algorithms may include a random process, a process where priority patrons are given priority for re-assignment of seat, a process where patrons are willing to pay additional for the re-assignment to either the theater or the individual patron whose seat is being provided to another patron, frequent event patrons, season ticket patrons, or other predetermined process.

If the patron that is identified by the re-allocation process is determined to be present

in the theater or event, for example, via mobile telephone, wireless device, and/or manual verification, an optional sub-process determines whether the patron's optional profile is also satisfied with the available seating. If the optional subscriber profile is not satisfied, then the re-allocation process searches for another possible patron. If the optional profile sub-process is satisfied, then the eligible patron is notified via one or more means, such as announcement, manually, wireless device, mobile telephone, bulletin board, and/or other means.

The patron is then notified and presented with the option of moving for free, use of award points, additional money to the theater and/or patron to whose seat is being provided, or other predetermined criteria to obtain the seat.

Optionally, a bidding process may be initiated that allows various patrons to bid against one another. Any standard bidding process may optionally be used. The patron, of course has the option to decline, and if so, the process continues and returns to the re-allocation process to attempt to locate another possible patron.

If the patron accepts, payment of money or other means may be effectuated on the spot via the

wireless device, credit card, debit card, points, and the like, and the patron may now move to the other seat. The patron's seat may then optionally be made available as an empty seat to the re-allocation process. If a predetermined period of time has not expired, then the re-allocation process may be run again to optionally continuously re-allocate seats. The patron may optionally store the up-graded ticket on a wireless device for proof of entrance to the better seating area. Optionally, the seat and/or row and/or section, includes a separate reader device to receive optionally the original ticket that is now re-allocated to a better seat, or a new ticket that may optionally be received by the patron via the wireless device and/or manually via a worker in the theater or stadium.

In another aspect of the invention, a registration form is first completed by the user in an initialization process. Subsequently, the user selects an event and pays for the ticket with, for example, a credit card in a secure e-commerce transaction. Then, in this embodiment, a bar coded ticket or receipt is generated and printed by the user. With the bar coded ticket or receipt in hand, the user avoids the box office

lines and proceeds directly to an attendant or POS who collects the ticket, verifies the purchase optionally automatically via a bar code reader, and admits the user to the movie screen. The user
5 is then eligible to participate in the reallocation, upgrade and/or reward process described herein.

In alternate embodiments, a scanner is utilized by, for example, an attendant who, rather than tearing the ticket stub in half, simply scans the bar code with the scanner to verify that a ticket purchase has indeed been made by the user. Similar processes may be used for the purchase of merchandise and concessions. Furthermore, to
10 eliminate fraud, once a ticket has been scanned into the real time point of sale system, it cannot be used again. Alternatively, the present invention is implemented in a fully automated setting without human intervention, except in the
15 event of a failure or when assistance is needed.
20

In other embodiments, the present invention utilizes credit cards, smart cards, or cards with memory media embedded therein, or other portable devices, such as wireless phones,
25 wireless pagers, personal digital assistants, or

Internet-ready watches as an alternative or in addition to the printed tickets.

In one embodiment, the present invention relates to upgrading and/or reallocating for the purchasing and provisioning an item utilizing a server linked to a client via a data communication network. This embodiment includes receiving a communication at the server from the client. The communication includes an order for a purchase of the item and an identifier associated with an identification device. This embodiment also includes updating an account associated with the identifier to reflect the purchase, accessing the account by utilizing the identifier at a point of sale server upon presentation of the identification device to verify the purchase, and provisioning the item at the point of sale server after verification of the purchase.

In another embodiment, the present invention also relates to reallocating, upgrading and/or awarding for the purchasing and/or provisioning an item utilizing a server linked to a client via a data communication network. This embodiment includes receiving a communication at the server from the client. The communication

includes an order for a purchase of the item. This embodiment also includes transmitting an identifier associated with an account from the server to the client for storage on an identification device, updating the account to reflect the purchase, accessing the account at a point of sale server upon presentation of the identification device by utilizing the identifier to verify the purchase, and provisioning the item at the point of sale server after verification of the purchase. The purchaser is then optionally eligible for the reallocating, upgrading and/or awarding process described herein.

In yet another embodiment, the present invention relates to purchasing and provisioning an item utilizing a server linked to a client via a data communication network. This embodiment includes transmitting a communication from the client to the server. The communication includes an order for a purchase of the item and causes an account to be updated thereby reflecting the purchase. The purchase and the account are associated with an identifier stored on an identification device. The account is accessible

5

upon presentation of the identification device for verifying and provisioning the item. The purchaser is then optionally eligible for the reallocating, upgrading and/or awarding process described herein.

10

In still yet another embodiment, the present invention relates to purchasing and provisioning an item utilizing a server linked to a client via a data communication network. This embodiment includes transmitting an order for a purchase of the item from the client to the server, associating an identifier with the purchase order and with an identification device in the possession of or to be transferred to a user, updating an account associated with the identifier to include the purchase, accessing the account at a point of sale server upon presentation of the identification device by utilizing the identifier to verify the purchase, and provisioning the item at the point of sale server after verification of the purchase order. The purchaser is then optionally eligible for the reallocating, upgrading and/or awarding process described herein.

20

25

In yet another embodiment, the present invention relates to purchasing and provisioning an item utilizing a server linked to a client via a data communication network. This embodiment 5 includes receiving a communication from a user including a purchase order request. In this embodiment, the user is associated with an identifier. This embodiment also includes updating an account associated with the identifier 10 to reflect the purchase order, and provisioning the purchase upon presentation of the identifier. The user is then optionally eligible for the reallocating, upgrading and/or awarding process described herein.

15

In one embodiment of the invention, a method at least one of reallocates, upgrades and awards admittance to events to an event customer via a data communication network. The data 20 communication network optionally comprises a server, workstations operably connectable to the server, one or more databases operably connectable to the server and the workstations where the workstations optionally include a web 25 browser interface facilitating communication with

the server, a point of sale server operably connectable to the server, a point of sale system operably connectable to the point of sale server, and wireless devices operably connectable to the server. The wireless devices include at least one of a smart card, a personal digital assistant, a mobile telephones, and a mobile data device, and the wireless device comprising at least one of transmitting and receiving means and transceiver means for receiving and transmitting signals.

According to one embodiment, the method includes the sequential, non-sequential and sequence independent steps of receiving a communication from the event customer, the communication including a request to obtain admittance to at least one event, the communication also including an identifier associated with an identification device, updating an account associated with the identifier to reflect the request, accessing the account by utilizing the identifier stored on the identification device at the point of sale system upon presentation of the identification device to verify the request, admitting the event customer

at the point of sale system after verification of
the request, determining a predetermined time
period associated with the event indicative of
another event customer from event customers not
5 attending the event in accordance with first
predetermined criteria, releasing an allocation
associated with the another event customer and
notifying at least one of the event customers
that are at least one of currently attending the
10 event and registered for the at least one of
reallocating, reprovisioning, upgrading and
awarding responsive to the releasing the
allocation, and accepting by at least one of the
event customers the at least one of reallocating,
15 reprovisioning, upgrading and awarding in
accordance with second predetermined criteria.

The communication optionally includes at
least one of payment information, an event
20 selection, a venue selection, a concession
selection, and a merchandise selection.

The identification device optionally
comprises a memory medium for storing the
25 identifier. The accessing optionally further
comprises reading the identifier from the

identification device with a reading device. The account is optionally stored in at least one of the server, the identification device, and the point of sale server. The account optionally includes a list of purchased items. The request optionally comprises at least one of a movie ticket, a sporting event ticket, a concession, or merchandise.

10 In other embodiments of the present invention, demographic information is received from the event customer. In addition, the identification device optionally comprises at least one of a smart card, a credit card, a
15 ticket, a wireless phone, a personal digital assistant, and a wireless device.

20 The method optionally includes the step of generating at least one of a physical receipt, a confirmation, and an electronic confirmation with at least one of the identification device and the point of sale server.

5

The method optionally includes the step of generating at least one of a physical receipt, a confirmation, and an electronic confirmation with at least one of the identification device and the point of sale server, and the at least one of the physical receipt, the confirmation, and the electronic confirmation comprises at least one of reserved seating and purchase information.

10

15

The second predetermined criteria optionally includes the event customer willing to pay at least one of a predetermined price and the highest price, and wherein the method further comprises the step of billing the event customer in at least one of real-time or at a later time for the at least one of reallocating, reprovisioning, upgrading and awarding in accordance with the second predetermined criteria.

20

25

The method optionally includes the step of releasing an allocation associated with the another event customer and the notifying at least one of the event customers that are at least one of currently attending the event and registered

for the at least one of reallocating, reprovisioning, upgrading and awarding is performed in accordance with a predetermined algorithm.

5

The first predetermined criteria optionally includes at least one of agreement with one or more of the event customers, the event customer not providing notice of non-attendance a first predetermined time period prior to the event, the event customer not providing notice of non-attendance a second predetermined time period after start of the event, the event customer leaving the event early, and other predetermined criteria.

10

15

20

In another embodiment of the invention, a method is provided of upgrading and awarding admittance to events to an event customer via a data communication network. The data communication network optionally comprises a server, workstations operably connectable to the server, one or more databases operably connectable to the server and the workstations,

the workstations optionally including a web browser interface facilitating communication with the server, a point of sale system, and wireless devices operably connectable to the server, the
5 wireless devices including at least one of a smart card, a personal digital assistant, a mobile telephone, and a mobile data device, and the wireless device comprising at least one of transmitting and receiving means and transceiver means for receiving and transmitting signals to and from the server.
10

The method includes the sequential, sequence independent and non-sequential steps of
15 receiving a communication from the event customer, the communication including a request to obtain admittance to at least one event, the communication also including an identifier associated with an identification device,
20 processing the request including accessing an account by utilizing the identifier stored on the identification device at the point of sale system upon presentation of the identification device to verify and process the request, and updating a
25 database indicating that the request was

processed, admitting the event customer at the point of sale system after verification of the request, determining a predetermined time period associated with the event indicative of at least one other event customer not attending the event in accordance with first predetermined criteria, releasing an allocation associated with the at least one other event customer and notifying at least one of the event customers that are at least one of currently attending the event, previously submitted a request to attend the event and registered for the event to perform the at least one of upgrading and awarding responsive to the releasing the allocation, and accepting by the at least one of the event customers the at least one of upgrading and awarding in accordance with second predetermined criteria.

In another embodiment of the invention, a method is provided of upgrading and awarding admittance to events to an event customer via a data communication network. The data communication network optionally includes a server, workstations operably connectable to the server, one or more databases operably connectable to the server and the workstations,

the workstations optionally including a web browser interface facilitating communication with the server, a point of sale system, and wireless devices operably connectable to the server, the
5 wireless devices including at least one of a smart card, a personal digital assistant, a mobile telephone, and a mobile data device, the wireless device comprising at least one of transmitting and receiving means and transceiver means for receiving and transmitting signals to and from the server.
10

The method includes the sequential, non-sequential or sequence independent steps of
15 receiving a communication from the event customer, the communication including a request to obtain admittance to at least one event, the communication also including an identifier associated with the event customer, admitting the event customer at the point of sale system after verification of the request, and updating a database indicating that the request was processed, determining first predetermined criteria associated with the event indicative of
20 at least one other event customer not attending
25

the event, releasing an allocation associated
with the at least one other event customer
responsive to the determining step, and notifying
at least another of the event customers to
5 perform the at least one of upgrading and
awarding responsive to the releasing the
allocation, and accepting by the at least another
of the event customers the at least one of
upgrading and awarding in accordance with second
10 predetermined criteria.

In another embodiment of the
invention, a system is provided to upgrade and
15 award admittance to events to an event customer.
The system includes a server comprising a
processor and a memory medium, the server
connected to a data communication network, the
memory medium containing instructions for
20 controlling the processor, wherein the processor
receives a communication from the event customer,
the communication including a request to obtain
admittance to at least one event, the
communication also including an identifier
25 associated with the event customer, updates a
database indicating that the request was

processed, determines first predetermined criteria associated with the event indicative of at least one other event customer not attending the event, releases an allocation associated with 5 the at least one other event customer responsive to the determining step, and notifies at least another of the event customers to at least one of upgrade and award the at least another of the event customers with the allocation. The system 10 also includes a plurality of wireless devices operably connectable to the server, the wireless devices including at least one of a smart card, a personal digital assistant, a mobile telephone, and a mobile data device, the wireless device comprising at least one of transmitting and 15 receiving means and transceiver means for receiving and transmitting signals to and from the server, including accepting by the at least another of the event customers the at least one of the upgrade and award for the reallocation via 20 at least one of the wireless devices.

In another embodiment of the invention, a system is provided for upgrading and awarding admittance to events to an event customer. The 25

system includes means for receiving a communication from the event customer, the communication including a request to obtain admittance to at least one event, the 5 communication also including an identifier associated with the event customer, means for admitting the event customer at the point of sale system after verification of the request, and updating a database indicating that the request 10 was processed, means for determining first predetermined criteria associated with the event indicative of at least one other event customer not attending the event, means for releasing an allocation associated with the at least one other 15 event customer responsive to the determining step, and notifying at least another of the event customers to perform the at least one of upgrading and awarding responsive to the releasing the allocation, and means for accepting by the at least another of the event customers 20 the at least one of upgrading and awarding in accordance with second predetermined criteria.

In another embodiment of the invention, a
25 method, system, server architecture and/or

tangible medium upgrade and award admittance of events to an event customer, preferably via a data communication network. The method includes the sequential, sequence independent and non-
5 sequential steps of, for example, receiving a communication from the event customer including a request to obtain admittance to at least one event, admitting the event customer, determining first predetermined criteria associated with the
10 event indicative of at least one other event customer not attending the event, releasing an allocation associated with the at least one other event customer, and notifying at least another of the event customers to perform the upgrade and/or
15 reallocation.

In accordance with the invention, as indicated above, when the patron registers for ticket re-allocation and/or purchase, via for
20 example the Internet, the patron may enter payment information at that time. Accordingly, when the patron accepts the ticket re-allocation and/or purchase, the system can automatically charge the patron without the patron actually
25 submitting/typing, for example, credit card

information over a wireless device. The tickets of
the present invention may be used to re-allocate
patrons that are sitting in the stadium and/or
patrons that may be in the vicinity of the stadium
5 but were unable to get seats. Since the present
invention re-allocates and/or sells tickets very
near to game time in accordance with one
embodiment, the patron must be in the general
vicinity of the stadium to take advantage of this
10 embodiment of the invention.

As described above, the patron may be
transmitted, for example, emailed, the actual
ticket or a confirmation number that they can use
15 proceed to their seat and/or re-allocated seat. An
optional graphical display via, for example, GPS,
as discussed above may be used to guide the patron
to the new location upon acceptance, as well as to
help the patron decide whether to purchase the
20 ticket and/or upgrade. For example, a graphical
map of the stadium and/or textual description may
be provided to the patron to help the patron
decide the quality of the upgrade and whether to
accept.

In one alternative embodiment, if the patron that has their ticket re-allocated in error, e.g., because the patron did not show up to the event based on the predetermined criteria but the patron was still planning on attending because they forgot about their seat being re-allocated, the system can re-allocate seats immediately upon the checking in of the patron and notify them that their seats have changed because they are late. In this situation, the stadium/venue might decide to further upgrade the patrons because of the mistake.

In accordance with one embodiment of the present invention, the process of the present invention specifically reserves seats of the highest or very high rating that are considered preferred, in the event a patron's seat is re-allocated prematurely or erroneously. In this situation, the patron who has had their seat re-allocated because they will likely receive an even better seat as a result of the mistaken (stadium or patron) or premature seat re-allocation.

In another embodiment of the present invention, as patrons are entering the venue or stadium, they are provided advantageously with a map of the stadium so patrons can analyze the potential upgrade to make a decision whether the upgraded seats are sufficiently good or of value to warrant the patron moving and/or paying for the additional upgrade. By handing the patron the map of the stadium, the process of the the present invention is not required to transmit a detailed schematic to the patron's wireless device which would not normally be able to effectively permit the patron to evaluate the proposed upgrade seats. The map that is handed out may optionally include information for patrons on where to register for the upgrade and/or additional advertisement opportunities.

In one alternative embodiment, the patron that has purchased the ticket, for example, a season ticket holder, may advise the stadium that for a particular game, set of games or all games, they do not want their seats to be re-allocated, and perhaps, an additional fee is assessed for this type of patron. If the stadium provides the

ability for the patron to selectively opt out of the seat re-allocation, the patron can, for example, connect to the system via the Internet, public switched telephone network, cellular network, and the like, and notify the system that they do not want their ticket re-allocated, for example, because they are coming late to the event. Other means of notifying the system and/or other reasons may be utilized in connection with the present invention.

In another alternative embodiment, the system provides patrons the ability to individually select when their tickets may be re-allocated. For example, one patron may prefer to only give up their ticket if they are late to the game by 15 minutes, while another patron may be willing to give up their ticket if they have not arrived 15 minutes before the game. In alternative embodiments, the stadium may provide incentives for the patron to have their ticket re-allocated prior to the game because it increases the stadium's chances of re-allocating/re-selling the ticket.

The present invention has particular benefits for stadiums that are constantly sold out, but where patrons habitually do not show up. For example, many stadiums are sold out by season ticket holders that do not show up to the game on a regular basis. The present invention permits these tickets to be re-allocated in accordance with, for example, predetermined algorithms, and provide additional patrons a better experience. In addition, the present invention has the benefit of moving the patrons closer to the action/players, and therefore, the ability to support and/or motivate the players to play well. In additional alternative embodiments, the stadium may provide the original ticket holder a portion of the proceeds as a result of the ticket re-allocation, thereby providing additional incentive to the ticket holder to permit their ticket to be re-allocated (when this is a voluntary program in the stadium). The stadium may then keep a percentage, portion or service fee from the resale and/or re-allocation of the ticket. Of course, the above embodiment may further apply to yet another embodiment where the stadium does not offer the upgrade to patrons sitting in the stadium, but to patrons that, for example, may be in the

geographic vicinity of the game but that may not currently have any tickets or that may be willing to purchase the tickets when availability is determined and to travel to the event.

5

In an alternative embodiment, the system determines priority of re-allocation of seats based first upon patrons that have seats that may also be re-allocated. That is, the systems attempts to maximize the number of re-allocations by prioritizing the re-allocation based upon seats that may be re-allocated after already being re-allocated. For example, if front row seats in a stadium are available to be re-allocated, in this alternative embodiment, patrons that are in the next closest section for example on the field level would be upgraded first to those seats. Then, patrons with less preferred seats, for example, in the upper deck would be re-allocated to the seats that have now become available from the patrons that have been upgraded to the front row. Thus, using this alternative priority scheme, the present invention maximizes the re-allocation numbers. Of course, this priority algorithm may be combined with additional factors, for example,

relating to subscriber/patron value. As described above, additional factors may be utilized in the algorithm to determine the subscriber or set of subscribers to offer the upgrade.

5 In alternative embodiments, patrons in the vicinity of the upgraded and re-allocated patrons may optionally rate the upgraded patron, for example, for appropriate behavior, wearing of excessively large hats, drunkenness behavior, and
10 the like. These ratings may then be taken into account in the re-allocation algorithm for future upgrades to the patron.

15 In alternative embodiments, the patrons eligible for the upgrade may be notified using standard email communications over a wireless device, mobile telephone, and/or other standard communication means. For example, standard text-to-voice and/or voice-to-text communications may
20 be used to contact the patron to evaluate whether an upgrade will be accepted and to actually accept the upgrade.

As discussed above, one or more of the above alternative embodiments may be incorporated into the embodiments described above, and/or any of the embodiments discussed
5 below.

In another embodiment of the invention, a method, system, server architecture and/or tangible medium upgrades or awards purchases for a customer. The method includes the sequential,
10 sequence independent and non-sequential steps of, for example, receiving a communication from the customer including a request to purchase an item, determining first predetermined criteria associated with the purchase associated with at least one other customer, and notifying at least
15 another of the event customers regarding the at least one of upgrade, award and purchase.

In another embodiment of the invention, a
20 method, system, server architecture and/or tangible medium combines, upgrades and/or awards purchases for a customer. The method includes the sequential, sequence independent and non-sequential steps of, for example, receiving a
25 communication from the customer including a

request to purchase an item, determining first predetermined criteria associated with the purchase and associated with at least one other customer, and notifying the at least one other customer regarding the at least one of upgrade, award and purchase.

In another embodiment of the invention, a system is provided for purchasing, upgrading and awarding an item to a customer. The system includes means for receiving a communication from the customer, the communication including a request to obtain the item, the communication also including an identifier associated with the customer, means for associating the customer at the point of sale system after verification of the request, and updating a database indicating that the request was processed, means for determining first predetermined criteria associated with the item indicative of at least one other customer associated or interested in the item, means for releasing an allocation associated with the at least another customer, and notifying at least another of the customers to perform the at least one of purchasing,

upgrading and awarding for the item, and means
for accepting by the at least another of the
customers the at least one of purchasing,
upgrading and awarding in accordance with second
5 predetermined criteria.

In another embodiment of the invention, as
indicated above, when the patron registers for
ticket re-allocation and/or purchase, via for
10 example the Internet, the patron may enter payment
information at that time. Accordingly, when the
patron accepts the ticket re-allocation and/or
purchase, the system can automatically charge the
patron without the patron actually
15 submitting/typing, for example, credit card
information over a wireless device. The tickets of
the present invention may be used to re-allocate
patrons that are sitting in the stadium and/or
patrons that have already purchased tickets in the
20 vicinity of the stadium but were unable to get
seats and/or may be in the vicinity of the stadium
but were unable to get seats. Since the present
invention re-allocates and/or sells tickets at any
time prior to and/or after beginning of game time
25 in accordance with one embodiment, the patron may

be in the general vicinity of the stadium to take advantage of this embodiment of the invention or even at any location when being offered upgrades and/or seats well in advance of the game. For
5 example, the present invention can upgrade or sell tickets to patrons well in advance of the game since it advantageously is permitted or has the authority to resell tickets either via ticket holders that do not show up during the game
10 and/or, for example, season ticket holders that have authorized the stadium in advance to resell their tickets based on predetermined criteria, for example, when the season ticket holder notifies the stadium that they will not be present at next
15 weeks game.

In one optional embodiment of the invention, the patron presents the usher with the confirmation number which the usher can enter into a wireless device using a local or private wireless network, or can simply use a walkie talkie or telephone to call the dispatcher to confirm the upgrade and/or new seats using the customer provided confirmation number. The
20 dispatcher will have access to the system to enter
25

the confirmation number to confirm the validity of the upgrade. Alternatively, a patron will retain their old ticket. The patron will give in the old ticket to the usher which is scanned or barcoded by the usher for immediate identification of new seats and used in place of, or in addition to, confirmation number.

Of course, the confirmation may optionally be made via customer name with an appropriate identification card or other information. Further, alternative methods may be used to verify that the confirmation number and/or ticket being used by the patron is valid. For example, the patron may be equipped with a printing device associated with the wireless device or download an actual ticket on line from home prior to the game for the new ticket or upgrade. Alternatively, the patron may be equipped with an identifier card, optionally including a bar code with a unique identifier relating to the patron's account information and profile that can be scanned for additional convenience. Alternatively, a wireless device may be used to securely store this type of identification and/or account information.

In at least one alternative embodiment of the invention, the patron may comprise optionally a corporate account that has a number of tickets, for example, season tickets. In this embodiment, the corporate account may have associated therewith a plurality of email addresses or other communication addresses to transmit the seat or upgrade offer to a number of potential patrons that may rotate their attendance at the games. In accordance with this optional embodiment, multiple emails can be stored for a single user/corporate account, and the system may transmit individual messages to all email addresses, or may only transmit messages to individual patrons for corporate account that individually advise the system that they are associated with a particular ticket/bar code for a particular game and will be/are present at a particular game.

In an alternative embodiment, patrons may enter the stadium and subsequently inform the system that they are present and interested in an upgrade via a kiosk where the patron can scan a bar code and enter their customer number to be eligible for upgrades during the game. The system

is then able to transmit a message to the customer, assuming that the customer has pre-registered with the system with the appropriate contact information. Alternatively, or in addition to individual use of a kiosk(s), the customer sales office may have a kiosk or additional functionality to enter the customer name and/or customer account and scan in the bar coded ticket on the spot to register each patron as they enter the stadium or venue.

As described above, the patron may be transmitted, for example, emailed, the actual ticket or a confirmation number that they can use proceed to their seat and/or re-allocated seat. An optional graphical display via, for example, GPS, as discussed above may be used to guide the patron to the new location upon acceptance, as well as to help the patron decide whether to purchase the ticket and/or upgrade. For example, a graphical map of the stadium and/or textual description may be provided to the patron upon entry in the stadium to help the patron decide the quality of the upgrade and whether to accept when an offer is received by the patron at a predetermined time.

The graphical map may comprise a small booklet with a map of the stadium showing seat locations, and optionally a game schedule.

5 The present invention has particular benefits for stadiums that are constantly sold out, but where patrons habitually do not show up. For example, many stadiums are sold out by season ticket holders that do not show up to the game on
10 a regular basis. The present invention permits these tickets to be re-allocated in accordance with, for example, predetermined algorithms, and provides additional patrons a better experience.
15 In addition, the present invention has the benefit of moving the patrons closer to the action/players, and therefore, the ability to support and/or motivate the players to play well. In additional alternative embodiments, the stadium may provide the original ticket holder a portion
20 of the proceeds as a result of the ticket re-allocation, thereby providing additional incentive to the ticket holder to permit their ticket to be re-allocated (when this is a voluntary program in the stadium). The stadium may then keep a
25 percentage, portion or service fee from the resale

and/or re-allocation of the ticket. Of course, the above embodiment may further apply to yet another embodiment where the stadium does not offer the upgrade to patrons sitting in the stadium, but to 5 patrons that, for example, may be in the geographic vicinity of the game but that may not currently have any tickets or that may be willing to purchase the tickets when availability is determined and to travel to the event.

10

In alternative embodiments, patrons in the vicinity of the upgraded and re-allocated patrons may optionally be eligible for a dating or matching service where patrons register and 15 provide profile information to the system and/or through a third service provider dating service. Once the system knows that the patrons will be coming to the game and/or have actually checked in to the stadium, the system can then arrange for 20 the two, four, etc. patrons to meet each other by allocating and/or re-allocating seats to the patrons together. Thus, based on profile information, customer request and availability, the system is able to upgrade or sell tickets to 25 patrons to maximize their chances of meeting

someone at the game. This optional feature provides significant potential enjoyment for the patrons participating in this dating or connection program. In accordance with this embodiment, one possible sequence of acceptance steps involves profile matching the two patrons (or groups of patrons) based on predetermined profile information; transmitting a first message to the first patron regarding availability of the second patron and requesting a conditional acceptance form the first patron; transmitting a second message to the second patron indicating that the first patron has conditionally accepted and request the second patron to accept; and when the second patron accepts before the first patron has rescinded the conditional acceptance, finalizing the upgrade and/or seat allocation for the first and second patrons. This embodiment of the invention is a complete reverse from typical dating and/or matchmaking services which attempt to develop detailed algorithms for the matching process because of the significant decision that exists in determining who to spend valuable time with. In accordance with the invention, patrons are already present at the game, and therefore, half or more than half the effort is already done.

The remainder is to actually meet the other person which can be accomplished with profile criteria, whether or not the algorithms are very sophisticated. In one embodiment, the patrons that are being matched have their original seats maintained and not made available for other upgrades in the event the matching does not work out early on. In this embodiment, one or both the patrons can return to their original seat.

5 Hopefully, there will not be a significant argument of who would need to return to their original seat if an upgrade is actually performed. In addition, in accordance with this embodiment, the seats that are selected do not necessarily have to be better seats in the classical sense.

10 That is, seats further away from other ticket holders might be considered preferred when matching two individuals for the first time. Alternatively, couple that would prefer a little

15 more privacy or quieter game might request to be moved to a more isolated area. Alternatively, families with small children might prefer to be moved to a less busy area as well during the game where the children might be able to freely move around. All these scenarios and/or alternatives

20 are possible in view of the present invention. The

25

5

advantage of performing a match in a public setting is that the patrons do not have to worry about leaving or ending the date, and also do not have to worry that the other person will have their home address.

10

15

20

25

In an alternative embodiment of the dating/matching service of the present invention, a dating/matching service is provided to patrons that enter a predetermined location and/or geographic area. The patron can enter physically the location and/or geographic and register, for example, by manually entering data in a computer, transmitting information relating to the registration of the patron via infrared, Bluetooth and/or other technology, and/or automatically register via use of GPS information associated with or used in a wireless device associated with the patron. For example, patrons that enter an establishment can register upon entry that they are now present within the general location of the establishment. Upon registry, the system can implement various matching algorithms currently in use by various matching services in connection with other patrons that have also registered at

the same location and/or a location in the general area that the original patron registered. According to this embodiment, the system advantageously matches individuals that have 5 registered in the same geographic location and/or geographic locations that are in the same general area where the patrons can walk and/or drive to meet each other in the same general time frame, such as the same evening, same afternoon same day, 10 and the like.

In an alternative embodiment of the dating/matching service of the present invention, a dating/matching service is provided to patrons 15 that enter a predetermined location and/or geographic area. The patron can enter physically the location and/or geographic and register, for example, by manually entering data in a computer, transmitting information relating to the 20 registration of the patron via infrared, Bluetooth and/or other technology, and/or automatically register via use of GPS information associated with or used in a wireless device associated with the patron. For example, patrons that enter an 25 establishment can register upon entry that they

are now present within the general location of the establishment. Upon registry, the system can implement various matching algorithms currently in use by various matching services in connection with other patrons that have also registered at the same location and/or a location in the general area that the original patron registered.

5 According to this embodiment, the system advantageously matches individuals that have registered in the same geographic location and/or geographic locations that are in the same general area where the patrons can walk and/or drive to meet each other in the same general time frame, such as the same evening, same afternoon same day,

10 and the like. In addition, the system advantageously and optionally provides the feature of allowing patrons to text message one another directly, and/or exchange pictures via wireless email, text messaging, and other wireless devices

15 that provide the standard capability of exchanging pictures, such as T Mobile and/or Sprint.

20

25 In addition, this feature also optionally permits the patrons that have participated in the program to rate one another for future dates. For

example, one patron can rate the conversational benefits of the second patron, the appearance of the second patron, the overall short term versus long terms relationship goals of the patron, and the like. These ratings may then be taken into account in the algorithm for future seat assignments, re-allocations and/or upgrades in the future for the first and second patrons, and all other patrons will now benefit with the additional profile information of the first and second patrons. The matching service may be for amusement or work related networking purposes, for example, to meet an executive that the patron currently works with or wishes to work with/sell in the future.

In alternative embodiments, the ticket holder can call in via a voice to text message, text message and/or email and let the stadium know early that they are not coming. In this manner the ticket holder obtains the convenience of the stadium or venue reselling their tickets in advance, thereby providing the venue with additional time to maximize the resale of the ticket.

In alternative embodiments, when the patron enters the stadium, they have their ticket barcoded or other device that detects their presence can be used such as infrared, Bluetooth, etc., and then they can become eligible for an upgrade. The patron can register in advance that they want to receive upgrades by providing their name, message address, e.g., email, telephone text message address, etc., and optionally their credit card or other payment mechanism for upgrades that actually cost money as opposed to free upgrades.

In alternative embodiments, the patron can register at the ticket booth when purchasing their original ticket. In this scenario, the stadium representative can enter this information on behalf of, and with the permission of, the patron since the patron may already be providing their credit card, debit card, etc. to purchase the original tickets. Alternatively or in addition, a kiosk may be provided where the patron can enter their original ticket, e.g., scan in their original ticket and provide their name and text message information in the stadium to register for a one time upgrade for the game after purchasing, for example, a regular admission ticket.

In alternative embodiments, an usher can verify that the patron should be upgraded by the patron providing the confirmation number that may be transmitted in real-time by the system, and/or by the patron using their original confirmation number or original ticket with barcode or other identification means, such as a smart card, infrared reader, etc. that represents original ticket and presenting same to the user. The usher then needs only to scan in the original ticket and the system will verify whether the patron associated with the original ticket is valid and whether the upgrade is valid.

15

In alternative embodiments, a warning message may be sent to the ticket holder that has not shown up to game warning them that if they do not respond within a certain time period that their seat will be re-allocated or re-assigned to another patron. Similarly, a release message may be sent to the ticket holder after their seat has actually been released and/or re-allocated, thereby notifying the patron that if they change their mind in attending the game, they will have

25

to obtain an additional ticket. In alternative embodiments, the ticket holder that has their seat released and re-allocated can be themselves re-allocated a similar, worse or better seat,
5 depending on, for example, their subscriber value and/or other criteria. For example, if the patron is provided a better seat, this will encourage them to more readily give up their seats in the future even if they are attending the game. On the
10 other hand, if the patron is provided a worse seat, then this encourages them not to artificially give up or have their seat released when attending the game. Accordingly, the present invention is designed to deal with various
15 behavioral patterns of specific ticket holders, and may optionally and advantageously be a ticket holder specific with respect to various criteria for re-assigning, releasing, selling and/or re-allocating tickets.

20

In alternative embodiments, the system transmits to the ticket holder a welcome message after being upgraded and after having been moved to a new upgraded seat location. In one embodiment, the system identifies that the patron
25

has been successfully upgraded after the patron provides the usher with a confirmation number or original ticket, which is then verified by the usher and system.

5

In alternative embodiments, the system, after having identified which patrons have checked into the stadium and/or have been upgraded, transmits a trivia question and/or additional advertisements to all patrons attending the game. In alternative embodiments, the information is transmitted to both patrons that are attending the game and additional patrons that have registered in the past to receive information but that are not attending the game. The participants can, for example, answer trivia questions and respond with their wireless device. Depending on whether the patron is attending the game or not, the system may determine to offer or deal with each of the patrons differently. For example, for patrons at the game, winners may be successively determined and narrowed, as patrons successfully and unsuccessfully answer questions, round after round of questions in a "spelling bee" format. For patrons that are not attending the game, winners

10

15

20

25

may be declared, or statistics provided to the broadcast station that can be aired on television. In yet additional alternative embodiments, instead of transmitting information/questions to the patrons via the wireless device, the information/questions are displayed on the stadium billboard for patrons at the game and/or on television for patrons that are watching the game on television. The patron can then merely respond via the device, e.g., the telephone accordingly via a voice-to-text system or via other mobile devices via text messaging.

In alternative embodiments, the present invention provides the advantage of additional advertising sponsorship to the venue. For example, in one embodiment, the venue is partitioned into different locations that may be assigned to different sponsors. In one embodiment, the sponsor that provides the most value may be assigned a certain number of premium seats that are not available to other sponsors.

For example, the sponsor may offer a discount on the upgrade if you are a Verizon or Verizon Wireless customer or they credit your cell

account for each seat upgrade or you get say 30 free minutes, etc. In alternative embodiments, the present invention provides the advantage of one wireless provider to advertise on another wireless providers mobile phone or wireless device. For example, if Verizon Wireless is a sponsor of the upgrade system for a particular stadium, the present invention will still work with, for example, AT&T, SPRINT, and CINGULAR customers. An advertisement message sent with the upgrade offer may read on the AT&T phone, "brought to you by Verizon Wireless." In an alternative embodiment of the present invention, text messaging is optionally used for mobile phones to perform the message communication of the present invention. The user is only required, in one embodiment, to reply or respond with a "Yes" to accept the upgrade offer since the user has advantageously pre-registered with the system, thereby minimizing the required communication/input by the user. In an alternative embodiment, the user, instead of pre-registering with the system, is charged on their wireless or even regular telephone number bill when they accept the upgrade offer. Thus, the wireless system that either administers the user's regular or wireless account or the upgrade sponsor

may be responsible for actually billing the customer in this alternative embodiment.

In the alternative embodiment when
5 text messaging is optionally used alone or in combination with other communication methods, the system provides the additional advantage of maximizing bandwidth usage by not requiring use of bandwidth on the wireless voice system, thereby
10 maximizing system resources.

In another alternative embodiment, the present invention optionally and advantageously provides a security and/or safety feature in the event of, for example, a minor event where a parent gets separated from a child, a disaster or other event that might require evacuation of the stadium. In one embodiment, the person needing help provides their name to an
15 attendant that can search the system for the contact information of their companion/parent. The system can thereafter send an email and/or text message to the companion/parent regarding the status of that person and provide instructions for meeting that person or arranging help, authorizing
20 medical procedures, and the like. In another
25

embodiment, the person requiring help, e.g., a child provides the attendant or kiosk with their ticket which can, e.g., scan the bar code or other reader system. The system can either automatically provide a text message to the parent who can then reply to the child/attendant via the kiosk to meet the child.

10 Alternatively, the parent can be instructed to meet the child at a predetermined location, and to stop looking for the child because the child was found. Thus, for this example, the person who is lost or separated from their party can notify security or access a kiosk.
15 Security can, for example, notify the parent that child is in safe custody, and should not search the stadium, and therefore, meet outside stadium in a pre-specified safe place.

20
25 In an alternative embodiment, if a child/person is separated, the security guard/kiosk can arrange the best place to meet, either in or outside the stadium, together based on an optional global positioning system (GPS). In addition, the party with the mobile device can be

provided directions on where to go to meet their party from who they have been separated.

In an alternative embodiment, the present invention may also be used in a security, defense and/or safety setting to direct patrons in a stadium for an orderly evacuation or notify patrons regarding status of a safety related event via, for example, a broadcast message including text message, email and the like. In this manner, system communication resources may be most efficiently utilized by not over-utilizing the system via voice communication, unless completely necessary. For example, the message can be broadcast in the event of an impending hurricane. In this situation, patrons in different sections get different messages, for example, to exit the stadium out of gates/exits that are either less occupied or closest to the section the patrons are sitting in. Advantageously, the present invention has the patrons contact information, including optionally and advantageously text messaging, that can be broadcast or sent to different patrons. The advantage of text messaging is that the bandwidth is more efficiently used in the event of an emergency, and there are no busy signals as in a

voice network. Further, the message is send, and if the network is at capacity, the system can automatically resend or the message will be placed in queue and sent as soon as capacity becomes
5 available.

In another alternative embodiment of the invention, the security bracelets of the present invention can be required to be displayed
10 and read on exit from a venue when a parent has reported that a child has been separated. In this event, all patrons are checked when they exit the stadium. The parent can report the specific seat that the child was sitting in, and then on exit,
15 all patrons are checked. If the specific seat appears or if a child attempts to leave without scanning or presenting their bracelet, then that child can be taken into custody until their parent arrives, thereby possibly preventing abduction.
20

For instance, in sporting venues the bracelet ticket includes the machine readable information that comprises at least one of a bar code and radio frequency identifier used for
25 security check in, and optionally check out. In this manner, the standard reading machines that

can scan the bar code or RFID information can keep track of people that have checked into the sporting event and/or venue. Advantageously, the machine readable information on the bracelet can also be used by the venue in the event the patrons seat assignment is modified, for example, via an electronic ticket exchange or upgrade program. In this embodiment, the visible indicia are no longer valid for the actual seating that may be dynamically changed and only represents optionally an initial seat assignment. However, the machine readable information may be used as a code to reference the specific patron and assign that patron a new seat. Thus, when the ticket reader scans the ticket and actually identifies, for example, the bar code, this information can be used to reference the patron, update and/or confirm the patron's current seat via the reader used, for example, by ushers in the venue, kiosk, entrance to the venue, and the like.

In an alternative embodiment, the security bracelets of the present invention can be required to be displayed and read on exit from a venue when a parent has reported that a child has been separated. In this event, all patrons are checked

when they exit the stadium. The parent can report the specific seat that the child was sitting in, and then on exit, all patrons are checked. If the specific seat appears or if a child attempts to 5 leave without scanning or presenting their bracelet, then that child can be taken into custody until their parent arrives, thereby possibly preventing abduction. This information, as previously mentioned, may be visually 10 cognizable for the patron and in combination, readable by electronic means if the bracelet includes a magnetic strip, bar code imprinting, or RF chip.

15 In an alternative embodiment of the present invention, the security bracelet and ticket combination of the present invention advantageously includes a bar code or other machine readable information such as a RFID 20 device. When, for example, a child is separated from their parent, the parent can notify security and the seat number associated with the child. If the child attempts to leave with their bar code/identifier, the system detects the bar 25 code/identifier as either being valid and identifying the child that is missing or being

invalid and raising another red flag. In an alternative embodiment, the bar codes/identifiers associated between children and adults correspond such that the child identifier must be within a predetermined time and/or number of checking out identifiers from/within the adult identifier. If this does not occur, the system determines that the child is leaving without their parent, and possibly being abducted.

10

In an alternative embodiment, the system links one or more tickets/identifiers together and requires the tickets/identifiers to exit the venue or event within a predetermined time period from one another and/or within a predetermined number of tickets/identifiers that have exited the venue and/or event. In the event that one ticket/identifier exits the venue or event and the associated identifier does not, then an alarm or other indictor occurs, and the attendants will detain the patrons that have initiated the alarm to for security purposes.

15

20

In an alternative embodiment, the tickets are advantageously coded with designations such as adult, child and the like. In the event a child ticket/identifier exits the stadium before the 5 associated adult and/or more than a predetermined time period and/or number of patrons exiting, the system can initiate an alarm so that an attendant can determine if a child has exited the venue or event without their parent or with a wrong parent 10 potentially averting a kidnapping. In this embodiment, an additional combination is the use of the standard fast pass feature, for example, at theme parks, and the like, where the venue records predetermined events that the user of the card 15 enters in a faster line. In this embodiment, if a child ticket/identifier is not associated with a parent ticket/identifier, for example, as described above, the child may be denied entry 20 into the event or venue if not accompanied by their parent. In alternative embodiments, the venue/event sponsor or organizer associates 25 tickets upon request from the patron. In addition, in another alternative embodiment, a kiosk is provided inside and/or outside the venue for, for example, parents to register their tickets and have them associated with their children's tickets

to prevent he child from exiting the venue without them, for example, as described above.

In an alternative embodiment of the present invention, the system and method are adapted to utilize any type of wireless device with different interface and communication options. For example, different wireless devices have different constraints with respect to the interface, e.g., number of characters, how the subject and body of the messages are used/communicated, etc. Accordingly, the present invention optionally provides a protocol conversion system depending on the type of wireless device and the wireless device constraints, including message constraints and/or the wireless communication system. In alternative embodiments, the system determines the wireless device provider based on the address received from the wireless device, and is able to automatically determine the type of message and/or message constraints and transmission constraints associated therewith based for example, on real-time information or on pre-determined stored information on the device and/or communication system. Accordingly, a protocol conversion system

for different wireless devices is provided by the present invention for sending and/or receiving messages, such as upgrade offers, responses, acceptances, and the like, from a variety of 5 different users/mobile devices and wireless systems.

In another alternative embodiment of the present invention, a security bracelet is advantageously utilized, for example, such as the 10 security bracelet disclosed in U.S. application number 10/680,207, filed on October 8, 2003, to Abraham I. Reifer, et al., and incorporated herein by reference, in the event of a reported event, security breach, abduction, and the like. In this 15 embodiment, all patrons exiting the stadium must show their ticket and/or identifier so that the venue can check all patrons out of the stadium. Thus, for example, if two kidnappers come in the stadium, and want to use one bracelet for a child, 20 the second kidnapper will be stranded in the stadium. In addition, if one kidnapper buys two tickets, then upon exit with the child and the additional ticket, a barcode/identifier will be exiting without ever having checked in, and then 25 the alarm will go off as well.

In another alternative embodiment, the present invention provides a broadcast message to warn patrons of an event, such as an advertisement, sale and/or even a weather related event such as a hurricane that might require the venue to be evacuated. Advantageously, in at least one embodiment, the broadcast message comprises standard text messaging that optimizes or better utilizes capacity from the communication system.

Thus, when using text messaging capabilities, the present invention efficiently transmits text messages to numerous subscribers regarding, for example, exit information, contacting and/or meeting additional parties that have been separated, and the like.

In an alternative embodiment of the present invention, the present invention optionally provides the capability to penetrate into secondary market with season ticket holders selling ahead of time the games they will not be attending. For example, the present invention optionally provides the feature for the season ticket holder and/or general ticket purchaser the ability to view in advance of the season and/or game the schedule, and to alert the venue and/or

stadium of games and/or events they will not be attending, thereby permitting the stadium/venue to attempt to resell the tickets to other patrons. For example, in one embodiment of the invention, 5 the patron is provided with a monthly schedule listing the events that may be attended. The patron, such as a season ticket holder, may then click or place an indicator on all games they will not be attending for the season in advance, 10 thereby providing the stadium with the ability to resell tickets well in advance of the event. Once the patron completes identifying games that will not be attended, the system then compiles a list and transmits the list to the patron for an 15 optional confirmation. This list is then used by the system to release seats well in advance of the game. In an alternative embodiment of the invention, registered users of the system for, for example, upgrades, may also be notified of seat 20 availability for sales prior to the game/event. In an alternative of this embodiment, registered users may receive text messages, emails, and the like, notifying them advantageously of the availability of seats that heretofore have never 25 been easily available to the public for sale,

thereby allowing the venue to participate in secondary market ticket sales.

5 In one alternative embodiment of the present invention, the system/process of the present invention provides or operates as a middle person/broker between the ticket holder that is returning tickets to the venue, such as the season ticket holder, and a ticket sales system and/or company, such as tickets.com, by notifying the tickets company of the newly available seats via notification by the ticket holder, such as the season ticket holder of season ticket games not being attended.

15

15 In one alternative embodiment of the invention, the system and/or process transmits text messages, emails and the like, to offer tickets and/or seats and/or admittance to 20 subscribers for events and/or games with empty seats even before game. Thus, the present invention allows the venue to participate in the secondary ticket sales market and the upgrade market, thereby increasing revenue and fan 25 loyalty.

Of course, all of the embodiments of the present invention may be used for any reserved seating event, and/or venue that require tickets for entry thereof.

5

In another alternative embodiment of the present invention, the use of machine readable identifiers provides advantages for, for example, the upgrade program or ticket exchange of the present invention. For example, when the upgrade, re-allocation and/or electronic ticket is issued, the machine readable identifier, for example, the bar code, on the original ticket is invalidated, thereby preventing use of the invalidated ticket.

10 Accordingly, when a new ticket holder purchases the ticket form the season ticket holder, the new purchaser will be issued a new machine readable identifier, and optionally a new paper ticket. The present invention advantageously is able to handle the issuance of a new ticket and invalidates the old ticket and optionally the old identifier that has, for example, been returned by the season ticket holder, thereby providing dynamic ticketing capability.

15

20

25

In an alternative embodiment of the present invention, the new patron obtains a new identifier such as a barcode, the old bar code of, for example, the season ticket holder is 5 invalidated. In one embodiment of the invention, season ticket holders are offered to opt in the upgrade process. Various commercial incentives are possible for the season ticket holder to opt in the upgrade process, such as monetary compensation 10 when their ticket is used for an upgrade and/or resold whether they express their intention not to go to the game prior to the game, and the like. Alternatively, season ticket holders may be offered that the cost of their season tickets 15 will, for example, remain the same as the previous year or be reduced if they participate in the program. Therefore, the combination season ticket trade-in and upgrade program in one embodiment of the invention will be beneficial to season ticket 20 holders by allowing them to trade when they already know that they have no intention of attending a game, and allow the season ticket holder to recoup some cost of the season tickets if they do not attend and their ticket is used as 25 an upgrade. In addition, additional patrons of the event and/or sprts team are permitted to attend

the game in locations/seats that they might never have been able to obtain access to. Further, the venue/stadium/team maximize revenues by being able to place tickets on the secondary market when the 5 ticket holder notifies the venue early enough that they are not attending the event, the venue also obtains additional revenue from upgrades when tickets are upgraded, and the venue obtains additional fan loyalty.

10

In another embodiment of the present invention, the system provides the ability to advertise via email, text messaging, and the like, for one wireless carrier on the wireless device 15 that is using another wireless carrier. Since the user of the wireless device has requested the service, the user appropriately receives the communication from the ticketing system of the present invention, and therefore, also 20 appropriately received the advertisement from the wireless carrier that is different than the wireless carrier that the user of the wireless may be using at that time.

25

In another alternative embodiment of the present invention, offers to purchase seats either

during the game or even well in advance of the game are "pushed" or transmitted out to registered users that have supplied their wireless address. For example, patrons can register in advance for the upgrade and/or regular ticket offers to purchase admittance via various methods including the Internet. When seats band/or admittance becomes available, a broadcast message or other standard messages may be transmitted to the registered patrons to notify them of the seat availability. Thus, seat offers are "pushed" to registered users that have requested this service advantageously to a wireless device and/or other address including standard telephone communication, as well as additional optional advertisements. The system, in one alternative embodiment, provides the user the option when registering to accept certain types of advertisements to be received on their wireless device via email and/or text messaging. In other embodiments, the user does not have the option of which advertisements to receive.

Advantageously, in accordance with one alternative embodiment of the present invention, if a patron decides to attend an event such as a

sporting event when the patron does not have time to wait to receive paper tickets (e.g., the patron is visiting in another city/location and does not have time to wait to receive tickets via mail and
5 is on the go), the system of the present invention transmits a ticket to the patron via, for example, a wireless communication system and/or other standard electronic communication system such as the Internet, and the patron can present their
10 ticket, for example, on their wireless device and show up to game.

In another embodiment of the present invention, an interactive patron entertainment system is provided where trivia questions, for example multiple choice questions on a variety of topics, are sent to the patron via email and/or text messaging and/or displayed on the scoreboard with an address to respond, such as
15 trivia@utixx.com. Patrons then text message and/or email and/or answer questions via voice-to-text messaging their answers. The system can then display the overall number of answers that are correct and incorrect, display bar graphs and the
20 like to the event patrons by displaying on a display, such as the scoreboard of a sporting
25

event. The system then identifies the patrons that have correctly answered the question and can then send new questions to be answered just to the previously correct patrons, thereby further narrowing the group of patrons. Successive questions can be sent, including questions that are not multiple choice and that require actual text to be entered via standard wireless device interfaces, and patrons are successively eliminated until a single or sub-set of patrons are determined to be the winners. Advantageously, the present invention provides entertainment to the patrons at the event by optionally providing successive questions throughout an event. In another alternative embodiment, simultaneously with the questions to the patrons present at the event, the present invention is also capable of sending the questions to patrons that have registered with the system, but are not at the event, for example, at home watching on the television or simply not currently involved in the game. The present invention is able to transmit the same and/or different questions to those registered users as well. Further, in another alternative embodiment of the present invention, viewers watching the television, for example the

same event that patrons are attending, may be presented with the same and/or different questions as well as an address and/or telephone number to call and provide their answer which they can compete with patrons at the event or can be used to provide a separate comparison of the answers and/or separate winners to the contest. In this embodiment, for example, questions may be displayed on the television, Internet website, and the like, during the event, and viewers watching the television may respond to the questions as described above. The system can optionally compare the percentage of correct answers between the television viewers and the patrons at the event, and/or provide separate awards or a single award to the winners from the pool of television/Internet viewers and/or patrons in the event.

In another alternative embodiment of the present invention, the system uses a seat database to determine which of the reserved seats are currently in use. The system may integrate with the seat database system of a venue and/or stadium or optionally be used in parallel with the seat venue/stadium database. For example, prior to the

event, the system may utilize the seat database of the venue to determine available seating and patrons that do not show up after a predetermined period of time. Alternatively, the present invention can operate using a separate database from the event/venue by copying or building a separate database used for the ticketing and/or upgrading according to the present invention. In this alternative, as patrons enter the venue, they are checked in directly to this separate database.

At the time of the event, the system will be able to check-in patrons using either the identification system, e.g., bar code scanner, of the event or venue, or provide a separate identification system.

As discussed above, one or more of the above alternative embodiments may be incorporated into the embodiments described above, and/or any of the embodiments discussed below. Furthermore, any of the embodiments of the present invention may be used for any reserved seating or other event.

Thus, any or all of the following advantages may be provided by the present invention: decrease costs incurred via printing fewer tickets; decrease the number of employees at the events as a result of increased home based printing, wireless device and/or smart card usage; increase efficiency at concession stands; provide another method and outlet to sell tickets and concessions; sell more tickets using e-mail messages; improve sales of tickets and concessions from key demographic information; receive a portion of advertisement sales; improve safety due to the decrease in the amount of cash handled at the theatres; ensure that parents' money given to children is actually spent on the concessions; shorter lines; greater convenience at the concession stand and point of sale; advance sales; more information about events before purchase of ticket; easy way to control a family budget; greater access to merchandise; improve demographic information to improve sales; direct marketing; higher impact for advertising via e mail messages; and/or more focused advertising.

There has thus been outlined, rather broadly, the more important features of the

invention in order that the detailed description thereof that follows may be better understood, and in order that the present contribution to the art may be better appreciated. There are, of course,
5 additional features of the invention that will be described hereinafter and which will form the subject matter of the claims appended hereto.

In this respect, before explaining at least one embodiment of the invention in detail, it is to be
10 understood that the invention is not limited in its application to the details of construction and to the arrangements of the components set forth in the following description or illustrated in the drawings. The invention is capable of other
15 embodiments and of being practiced and carried out in various ways. Also, it is to be understood that the phraseology and terminology employed herein are for the purpose of description and should not be regarded as limiting.

20 As such, those skilled in the art will appreciate that the conception, upon which this disclosure is based, may readily be utilized as a basis for the designing of other structures, methods and systems for carrying out the several
25 purposes of the present invention. It is important, therefore, that the claims be regarded

as including such equivalent constructions insofar as they do not depart from the spirit and scope of the present invention.

5 Further, the purpose of the foregoing abstract is to enable the U.S. Patent and Trademark Office and the public generally, and especially the scientists, engineers and practitioners in the art who are not familiar with 10 patent or legal terms or phraseology, to determine quickly from a cursory inspection the nature and essence of the technical disclosure of the application. The abstract is neither intended to define the invention of the application, which is measured by the claims, nor is it intended to be 15 limiting as to the scope of the invention in any way.

These together with other objects of the invention, along with the various features of 20 novelty which characterize the invention, are pointed out with particularity in the claims annexed to and forming a part of this disclosure. For a better understanding of the invention, its operating advantages and the specific objects 25 attained by its uses, reference should be made to the accompanying drawings and descriptive matter

in which there is illustrated preferred embodiments of the invention.

Brief Description of the Drawings

5 FIG. 1 is directed to a prior art Internet capable browser dispenser architecture;

FIGS. 2-3 are illustrations of a prior art interactive game system;

10 FIG. 4 is an illustration of a prior art portable computing device for organizing a sports team;

FIG. 5 is a prior art illustration of a portable computerized pari-mutuel sports entertainment system;

15 FIG. 6 is an illustration of a prior art method and apparatus for a cryptographically assisted commercial network system designed to facilitate buyer-driven conditional purchase offers;

20 FIGS. 7-9 show a prior art radio frequency (RF) transmission system;

FIG. 10 is an illustration of Yankee Group projections for an installed base of PCs that will reach 500 million by 2003;

FIG. 11 shows that mobile network carriers have relied on a variety of incompatible wireless access standards;

5 FIG. 12 shows the standard Bluetooth protocol stack;

FIG. 13 illustrates the standard discovery and registration process for Jini clients and services;

10 FIG. 14 shows the three fundamental components in the Salutation architecture: *functional units*, *salutation managers*, and *transport managers*;

FIG. 15 is an illustration of a control point sending a multicast request to a network;

15 FIG. 16 is an illustration of a service location protocol (SLP) which is an IETF protocol for service discovery and advertisement;

FIG. 17 is an illustration of the Bluetooth stack differing from the classical seven-layer networking model;

20 FIG. 18 is an illustration viewing standard L2CAP as the data plane of the Bluetooth link layer;

FIG. 19 is an illustration of a Bluetooth transmitter that upconverts the baseband information to the frequency-modulated carrier;

5 FIG. 20 illustrates one embodiment of the logical architecture for the security services, where authentication verifies a claimant's identity;

10 FIG. 21 is an illustration showing once the ticket arrives at the Web browser, it must be secured from tampering;

FIG. 22 illustrates the logic for implementing the ticket-issuance service and its interaction with the authentication and user profile services;

15 FIG. 23 is a flowchart of an embodiment of the invention that incorporates one or more of the architectures or communications methods described above;

FIGs. 24-37 are flowcharts of various embodiment
sof the process of the present invention;

20 FIG. 38 is an illustration of a main central processing unit for implementing the computer processing in accordance with a computer implemented embodiment of the present invention;

FIG. 39 illustrates a block diagram of the internal hardware of the computer of FIG. 38;

FIG. 40 is a block diagram of the internal hardware of the computer of FIG. 38 in accordance
5 with a second embodiment;

FIG. 41 is an illustration of an exemplary memory medium which can be used with disk drives illustrated in FIGs. 38-40;

10

FIG. 42 is an illustration of the functional operation of the main central processing unit illustrated in FIGs. 38-41;

15

FIG. 43 is a block diagram of an alternative computer system suitable for implementing the invention;

20

FIG. 44 is a block diagram showing a portion of the computer system of FIG. 43 in more detail;

25

FIG. 45 is an illustration of the architecture of the combined internet, POTS, and ADSL architecture for use in the present invention in accordance with a first embodiment;

FIG. 46 is an illustration of the architecture of the combined internet, POTS, and ADSL architecture for use in the present invention in accordance with a second embodiment;

5

FIG. 47 is an illustration of the architecture of the combined internet, POTS, and ADSL architecture for use in the present invention in accordance with a third embodiment; and

10

FIG. 48 is an illustration of the architecture of the combined internet, POTS, and ADSL architecture for use in the present invention in accordance with a fourth embodiment.

15

Description of Best Mode of the Invention

Reference now will be made in detail to the presently preferred embodiments of the invention. Such embodiments are provided by way of explanation of the invention, which is not intended to be limited thereto. In fact, those of ordinary skill in the art may appreciate upon reading the present specification and viewing the present drawings that various modifications and

25

variations can be made. For example, features illustrated or described as part of one embodiment can be used on other embodiments to yield a still further embodiment. Additionally, certain
5 features may be interchanged with similar devices or features not mentioned yet which perform the same or similar functions. It is therefore intended that such modifications and variations are included within the totality of the present
10 invention.

Driven by a widespread understanding of the Internet's capabilities, the power of electronic commerce, and advances in wireless technologies and devices, mobile commerce
15 (m-commerce) is rapidly approaching the business forefront. According to independent research findings, m-commerce—the conduct of business and services over portable, wireless devices—will soon be a dominant force in business and society. For
20 example:

- IDC, an information technology research firm, reports that 70 percent of all wireless subscribers worldwide will access data applications via their phones by 2002.
25

- The investment firm Robinson Humphrey predicts
5 that, in the US, 50 percent of Internet hits will originate from wireless devices by 2004.
- The Yankee Group, a telecommunications research firm, projects that by 2004 more than 40 percent
10 of wireless users in the US will access Internet content directly from their mobile devices.

The viability of these projections depends on the power of the underlying technology drivers and the attractiveness of m-commerce applications.
15 To compete in a marketplace dominated by wireless devices, businesses must devise effective m-commerce strategies. Building successful strategies begins by recognizing the forces driving m-commerce's emergence.

20 The US Federal Communication Commission's auctioning of personal communication-service spectrum space in the mid-1990s triggered the current rush to wireless communication methods.
25 Wireless communication now encompasses not only

telephones but appliances, including personal digital assistants (PDAs).

Internet use has grown on the strength of
5 PC networks. According to Yankee Group projections, the installed base of PCs will reach 500 million by 2003, as FIG. 10 shows. This huge base is essential to continued growth in electronic commerce and other communications
10 applications. Moreover, because these systems will have greater power and storage capability, as well as the best ever price-performance ratios, more powerful and sophisticated applications will likely emerge for desktop computing and the
15 Internet.

Although these expectations are impressive, PCs still have two limiting characteristics. First, users must sit in front
20 of them. Second, even portable-notebook PCs have to load software, dial into and connect with a network service provider, and await completion of the handshaking process before they can launch an Internet application. This sequence is
25 understandable, but at best it seems a tolerable nuisance. Hence, the dominant applications are

still those that are worth the trouble it takes for a user to follow this access sequence or, at least, to keep the computer and applications running.

5

The aggregate PC installation is substantial, but even more mobile communication devices are in use. The Gartner Group and other research firms project that by 2004, the installed base of mobile phones worldwide will exceed 1 billion more than twice the number of PCs. In addition, the number of other wireless mobile devices will also increase dramatically. Wireless PDA use will more than triple in the next three years. Unlike PCs, these wireless devices require no boot sequence, so people can use them as soon as they turn them on-making them attractive for quick-hit applications.

20

Just as the transmission control protocol/Internet protocol and the general purpose browser were principal drivers of Internet growth, letting disparate devices interconnect and communicate, similar factors will simplify the interconnectivity and communication of heterogeneous wireless devices. As FIG. 11 shows,

25

mobile network carriers have relied on a variety of incompatible wireless access standards.

Recently, however, a common communications technology and uniform interface standard for presenting and delivering wireless services on mobile devices-wireless application protocol (WAP) -have emerged.

WAP specifications include a microbrowser; scripting similar to JavaScript; access functions; and layered communication specifications for sessions, transport, and security. These specifications enable interface-independent and interoperable applications. Most wireless handset and device manufacturers, as well as several service and infrastructure providers, have adopted the WAP standard.

Current access technologies, including TDMA (time division multiple access), CDMA (code division multiple access), and GSM (Global System for Mobile Communication), transmit at 9.6 to 19.2 Kbps. These speeds are dramatically slower than the dial-up rates of desktop PCs connecting to the Internet. Although m-commerce is possible at these bandwidth rates, the slow speeds are not

conducive to creating widespread business or consumer participation.

3G (third-generation) wireless technology
5 will also be available. In addition to having greater bandwidth rates, with speeds up to 2 Mbps, 3G will support multimedia transmission. Integrating voice, data, and one- or two-way video will let m-commerce run over any wireless device.

10

M-commerce applications fall into three main categories: transaction management, digital content delivery, and telemetry services. Users will increasingly initiate a wide range of business transactions from mobile devices. Online shopping sites tailored to mobile phones and PDAs including browsing, selection, purchase, payment, and delivery-have already emerged. These sites include all the necessary shopping features, such as online catalogs, shopping carts, and back office functions. Online booksellers are among the firms that have already implemented wireless shopping transactions. Another class of m-commerce transactions involves using wireless devices to initiate and pay for purchases and services in real time. These kinds of transactions will

15

20

25

likely increase as users gain the capability-and
become comfortable enough-to manage them. The
highest m-commerce transaction volume will
probably occur in micro transactions. When
5 individuals reach for their e-cash-equipped mobile
phones or PDAs-rather than coins-to settle
transactions such as subway fees, widespread use
of digital cash will be a reality.

10 Digital content delivery uses the wireless
channel's distribution characteristics. These
m-commerce activities include information
browsing-instant retrieval of status information
(weather, transit schedules, sports scores, ticket
15 availability, and market prices)-and directory
services. The CNN Wireless news subscription
service and the UPS PDA-linked package tracking
and locator service are representative of emerging
content delivery services.

20 Digital products easily transport to and
from wireless devices. Hence, downloading
entertainment products-for example, MP3 music-is
likely to become even more commonplace when 3G
25 arrives. Transferring software, high resolution
images, and full-motion advertising messages will

also become common activities. The emergence of high-quality display screens and greater bandwidth will undoubtedly trigger the development of innovative video applications. Individuals will 5 use wireless devices to access, retrieve, store, and display high-resolution video content for entertainment, product demonstration, and distance learning.

10 The transmission and receipt of status, sensing, and measurement information-telemetry services-form the basis for a wide range of new applications involving mobile devices. Innovations in this area let people use wireless 15 phones and appliances to communicate with various devices from their homes, offices, or in the field. For instance, delivery drivers will "ping" intelligent dispensing machines or store computers to determine where their rolling inventory is 20 needed most or which locations need immediate service. Similarly, users will transmit messages to activate remote recording devices or service systems.

25 Active m-commerce applications function only when someone directly initiates them by

transmitting payment details, requesting information, receiving specific content, or retrieving status information. In contrast, passive applications occur without the user taking any action-for example, the automatic collection of toll charges with dedicated cash cards.

Integrating digital cash into mobile devices would make these cash cards unnecessary. These wireless devices would facilitate and record payment of toll, mass-transit, fast-food, and other transactions without the user authorizing or entering identification information for each individual transaction. Users could arrange to have their cash chips update automatically by directing the wireless device to contact their money source and download additional digital cash whenever necessary.

Popular in Europe, short messages text messages, up to 160 characters in length, that show up on the recipient's display as they arrive-are examples of passive content delivery. As digital convergence becomes more commonplace, all forms of mail will passively go to wireless devices, including digitized voice mail, fax documents, and e-mail. Passive security,

intrusion, and emergency telemetry services will refine the monitoring of facilities and individuals. Any unusual event or unacceptable condition will trigger user notification,
5 regardless of location. Airlines are testing technology that will let them alert passengers, especially frequent fliers, to seat upgrades, schedule changes, and so on, through wireless devices. Some airlines already have prototype
10 telemetry systems that transmit this kind of information to passengers as soon as they enter the airport or pass near a kiosk-like device.

Passive m-commerce telemetry is the
15 foundation of still another form of interactive marketing. Stores will be able to market their products and services by transmitting promotional coupons and messages to passers by: "Come in and enjoy a complimentary cup of our new coffee
20 blend," or "Get half off, if you make your purchase within the next 30 minutes." This type of marketing may give rise to a new challenge: managing m-junk messages without turning off your wireless device.

The technology to facilitate m-commerce is within reach, even as barriers to its development fall away. Applications and wireless devices promise to evolve together, each driving the 5 introduction of innovative and powerful features in the other. The opportunity and challenge is for business to develop strategies that capitalize on the strengths of mobile commerce, thereby helping it to compete in an increasingly digital 10 marketplace. The greatest challenge to structuring such a strategy may be creating the innovations that will meet the needs and expectations of consumers and commercial participants. Additional details regarding the 15 above may be found in James A. Senn, *The Emergence of M-Commerce*, IEEE COMPUTER (December 2000), incorporated herein by reference and all references cited there incorporated herein by reference.

20

In accordance with one embodiment of the invention, the process begins as all tickets are checked in, for example, as the patrons enter the reserved seating area, such as a stadium or 25 theater, through, for example, bar code readers,

scanners, infrared readers, and/or manually or other method where the patron is checked in, either at the gate, seat or other location. For example, patrons can optionally check in a 5 predetermined time before the event through a wireless device, Internet connection, manual or voice recognition telephone, or other manner. The important point is to provide a standard manner for allowing patrons to check in, and if the 10 patron fails to check in using a predetermined procedure, to allow that seat to be provided to another willing patron in accordance with a process to be described below. The patron may check in either a predetermined time before or 15 after the event begins. Currently, such a process is impossible and unthinkable in view of the difficulty reserved seating events have in simply getting the patrons seated prior to the beginning of the event. The present invention represents a 20 revolutionary process to enhance event enjoyment, earn patron loyalty and optionally provide additional revenues to the theater/stadium or optionally other patrons with the desirable ticket.

The check in procedure continues for a predetermined period of time until a predetermined time period has expired, for example, 5 minutes before the event begins, 10 5 minutes after the event begins, after a predetermined event, such as the second act of a play, and the like. Once the predetermined time period or event has been completed, the check in procedure may be considered completed to begin 10 the seat re-allocation process. To begin the seat re-allocation process, a re-allocation algorithm is used to re-assign seats for patrons that are willing or interested in different or better seats. Such re-allocation processes or 15 algorithms may include a random process, a process where priority patrons are given priority for re-assignment of seat, a process where patrons are willing to pay additional for the re-assignment to either the theater or the 20 individual patron whose seat is being provided to another patron, frequent event patrons, season ticket patrons, or other predetermined process.

If the patron that is identified by the 25 re-allocation process is determined to be present

in the theater, for example, via mobile telephone, wireless device, and/or manual verification, an optional sub-process determines whether the patron's optional profile is also satisfied with the available seating. If the optional subscriber profile is not satisfied, then the re-allocation process searches for another possible patron. If the optional profile sub-process is satisfied, then the eligible patron is notified via one or more means, such as announcement, manually, wireless device, mobile telephone, bulletin board, and/or other means. The patron is then notified and presented with the option of moving for free, use of award points, additional money to the theater and/or patron to whose seat is being provided, or other predetermined criteria to obtain the seat. Optionally, a bidding process may be initiated that allows various patrons to bid against one another. Any standard bidding process may optionally be used. The patron, of course has the option to decline, and if so, the process continues and returns to the re-allocation process to attempt to locate another possible patron.

If the patron accepts, payment of money or other means may be effectuated on the spot via the wireless device, credit card, debit card, points, and the like, and the patron may now move to the
5 other seat. The patron's seat may then optionally be made available as an empty seat to the re-allocation process. If a predetermined period of time has not expired, then the re-allocation process may be run again to optionally
10 continuously re-allocate seats. The patron may optionally store the up-graded ticket on a wireless device for proof of entrance to the better seating area. Optionally, the seat and/or row and/or section, includes a separate reader
15 device to receive optionally the original ticket that is now re-allocated to a better seat, or a new ticket that may optionally be received by the patron via the wireless device and/or manually via a worker in the theater or stadium.

20 In another embodiment of the invention, as indicated above, when the patron registers for ticket re-allocation and/or purchase, via for example the Internet, the patron may enter payment information at that time. Accordingly, when the
25 patron accepts the ticket re-allocation and/or purchase, the system can automatically charge the

patron without the patron actually
submitting/typing, for example, credit card
information over a wireless device. The tickets of
the present invention may be used to re-allocate
5 patrons that are sitting in the stadium and/or
patrons that have already purchased tickets in the
vicinity of the stadium but were unable to get
seats and/or may be in the vicinity of the stadium
but were unable to get seats. Since the present
10 invention re-allotates and/or sells tickets at any
time prior to and/or after beginning of game time
in accordance with one embodiment, the patron may
be in the general vicinity of the stadium to take
advantage of this embodiment of the invention or
15 even at any location when being offered upgrades
and/or seats well in advance of the game. For
example, the present invention can upgrade or sell
tickets to patrons well in advance of the game
since it advantageously is permitted or has the
20 authority to resell tickets either via ticket
holders that do not show up during the game
and/or, for example, season ticket holders that
have authorized the stadium in advance to resell
their tickets based on predetermined criteria, for
25 example, when the season ticket holder notifies

the stadium that they will not be present at next weeks game.

In one optional embodiment of the
5 invention, the patron presents the usher with the confirmation number which the usher can enter into a wireless device using a local or private wireless network, or can simply use a walkie talkie or telephone to call the dispatcher to
10 confirm the upgrade and/or new seats using the customer provided confirmation number. The dispatcher will have access to the system to enter the confirmation number to confirm the validity of the upgrade. Alternatively, a patron will retain
15 their old ticket. The patron will give in the old ticket to the usher which is scanned or barcoded by the usher for immediate identification of new seats and used in place of, or in addition to, confirmation number.

20

Of course, the confirmation may optionally be made via customer name with an appropriate identification card or other information. Further, alternative methods may be used to verify

that the confirmation number and/or ticket being used by the patron is valid. For example, the patron may be equipped with a printing device associated with the wireless device or download an actual ticket on line from home prior to the game for the new ticket or upgrade. Alternatively, the patron may be equipped with an identifier card, optionally including a bar code with a unique identifier relating to the patron's account information and profile that can be scanned for additional convenience. Alternatively, a wireless device may be used to securely store this type of identification and/or account information.

15 In at least one alternative embodiment of the invention, the patron may comprise optionally a corporate account that has a number of tickets, for example, season tickets. In this embodiment, the corporate account may have associated therewith a plurality of email addresses or other communication addresses to transmit the seat or upgrade offer to a number of potential patrons that may rotate their attendance at the games. In accordance with this optional embodiment, multiple emails can be stored for a single user/corporate

account, and the system may transmit individual messages to all email addresses, or may only transmit messages to individual patrons for corporate account that individually advise the 5 system that they are associated with a particular ticket/bar code for a particular game and will be/are present at a particular game.

In an alternative embodiment, patrons may enter the stadium and subsequently inform the 10 system that they are present and interested in an upgrade via a kiosk where the patron can scan a bar code and enter their customer number to be eligible for upgrades during the game. The system is then able to transmit a message to the 15 customer, assuming that the customer has pre-registered with the system with the appropriate contact information. Alternatively, or in addition to individual use of a kiosk(s), the customer sales office may have a kiosk or additional 20 functionality to enter the customer name and/or customer account and scan in the bar coded ticket on the spot to register each patron as they enter the stadium or venue.

As described above, the patron may be transmitted, for example, emailed, the actual ticket or a confirmation number that they can use proceed to their seat and/or re-allocated seat. An
5 optional graphical display via, for example, GPS, as discussed above may be used to guide the patron to the new location upon acceptance, as well as to help the patron decide whether to purchase the ticket and/or upgrade. For example, a graphical
10 map of the stadium and/or textual description may be provided to the patron upon entry in the stadium to help the patron decide the quality of the upgrade and whether to accept when an offer is received by the patron at a predetermined time.

15 The graphical map may comprise a small booklet with a map of the stadium showing seat locations, and optionally a game schedule.

.
The present invention has particular
20 benefits for stadiums that are constantly sold out, but where patrons habitually do not show up. For example, many stadiums are sold out by season ticket holders that do not show up to the game on a regular basis. The present invention permits
25 these tickets to be re-allocated in accordance

with, for example, predetermined algorithms, and provides additional patrons a better experience. In addition, the present invention has the benefit of moving the patrons closer to the action/players, and therefore, the ability to support and/or motivate the players to play well. In additional alternative embodiments, the stadium may provide the original ticket holder a portion of the proceeds as a result of the ticket re-allocation, thereby providing additional incentive to the ticket holder to permit their ticket to be re-allocated (when this is a voluntary program in the stadium). The stadium may then keep a percentage, portion or service fee from the resale and/or re-allocation of the ticket. Of course, the above embodiment may further apply to yet another embodiment where the stadium does not offer the upgrade to patrons sitting in the stadium, but to patrons that, for example, may be in the geographic vicinity of the game but that may not currently have any tickets or that may be willing to purchase the tickets when availability is determined and to travel to the event.

In alternative embodiments, patrons in the vicinity of the upgraded and re-allocated patrons may optionally be eligible for a dating or matching service where patrons register and provide profile information to the system and/or through a third service provider dating service.

Once the system knows that the patrons will be coming to the game and/or have actually checked in to the stadium, the system can then arrange for the two, four, etc. patrons to meet each other by allocating and/or re-allocating seats to the patrons together. Thus, based on profile information, customer request and availability, the system is able to upgrade or sell tickets to patrons to maximize their chances of meeting someone at the game. This optional feature provides significant potential enjoyment for the patrons participating in this dating or connection program. In accordance with this embodiment, one possible sequence of acceptance steps involves profile matching the two patrons (or groups of patrons) based on predetermined profile information; transmitting a first message to the first patron regarding availability of the second patron and requesting a conditional acceptance from the first patron; transmitting a second

message to the second patron indicating that the first patron has conditionally accepted and request the second patron to accept; and when the second patron accepts before the first patron has 5 rescinded the conditional acceptance, finalizing the upgrade and/or seat allocation for the first and second patrons. This embodiment of the invention is a complete reverse from typical dating and/or matchmaking services which attempt 10 to develop detailed algorithms for the matching process because of the significant decision that exists in determining who to spend valuable time with. In accordance with the invention, patrons are already present at the game, and therefore, 15 half or more than half the effort is already done. The remainder is to actually meet the other person which can be accomplished with profile criteria, whether or not the algorithms are very sophisticated.

20

In one embodiment, the patrons that are being matched have their original seats maintained and not made available for other upgrades in the event the matching does not work out early on. In 25 this embodiment, one or both the patrons can

return to their original seat. Hopefully, there will not be a significant argument of who would need to return to their original seat if an upgrade is actually performed. In addition, in accordance with this embodiment, the seats that are selected do not necessarily have to be better seats in the classical sense. That is, seats further away from other ticket holders might be considered preferred when matching two individuals for the first time. Alternatively, couple that would prefer a little more privacy or quieter game might request to be moved to a more isolated area. Alternatively, families with small children might prefer to be moved to a less busy area as well during the game where the children might be able to freely move around. All these scenarios and/or alternatives are possible in view of the present invention. The advantage of performing a match in a public setting is that the patrons do not have to worry about leaving or ending the date, and also do not have to worry that the other person will have their home address.

In an alternative embodiment of the
25 dating/matching service of the present invention,

a dating/matching service is provided to patrons that enter a predetermined location and/or geographic area. The patron can enter physically the location and/or geographic and register, for example, by manually entering data in a computer, transmitting information relating to the registration of the patron via infrared, Bluetooth and/or other technology, and/or automatically register via use of GPS information associated with or used in a wireless device associated with the patron. For example, patrons that enter an establishment can register upon entry that they are now present within the general location of the establishment. Upon registry, the system can implement various matching algorithms currently in use by various matching services in connection with other patrons that have also registered at the same location and/or a location in the general area that the original patron registered.

According to this embodiment, the system advantageously matches individuals that have registered in the same geographic location and/or geographic locations that are in the same general area where the patrons can walk and/or drive to meet each other in the same general time frame,

such as the same evening, same afternoon same day, and the like.

In addition, this feature also optionally
5 permits the patrons that have participated in the
program to rate one another for future dates. For
example, one patron can rate the conversational
benefits of the second patron, the appearance of
the second patron, the overall short term versus
10 long terms relationship goals of the patron, and
the like. These ratings may then be taken into
account in the algorithm for future seat
assignments, re-allocations and/or upgrades in the
future for the first and second patrons, and all
15 other patrons will now benefit with the additional
profile information of the first and second
patrons. The matching service may be for amusement
or work related networking purposes, for example,
to meet an executive that the patron currently
20 works with or wishes to work with/sell in the
future.

In an alternative embodiment of the
dating/matching service of the present invention,

a dating/matching service is provided to patrons that enter a predetermined location and/or geographic area. The patron can enter physically the location and/or geographic and register, for example, by manually entering data in a computer, transmitting information relating to the registration of the patron via infrared, Bluetooth and/or other technology, and/or automatically register via use of GPS information associated with or used in a wireless device associated with the patron. For example, patrons that enter an establishment can register upon entry that they are now present within the general location of the establishment. Upon registry, the system can implement various matching algorithms currently in use by various matching services in connection with other patrons that have also registered at the same location and/or a location in the general area that the original patron registered.

According to this embodiment, the system advantageously matches individuals that have registered in the same geographic location and/or geographic locations that are in the same general area where the patrons can walk and/or drive to meet each other in the same general time frame, such as the same evening, same afternoon same day,

and the like. In addition, the system
advantageously and optionally provides the feature
of allowing patrons to text message one another
directly, and/or exchange pictures via wireless
5 email, text messaging, and other wireless devices
that provide the standard capability of exchanging
pictures, such a T Mobile and/or Sprint.

In alternative embodiments, the ticket
10 holder can call in via a voice to text message,
text message and/or email and let the stadium know
early that they are not coming. In this manner the
ticket holder obtains the convenience of the
stadium or venue reselling their tickets in
15 advance, thereby providing the venue with
additional time to maximize the resale of the
ticket.

In alternative embodiments, when the
20 patron enters the stadium, they have their ticket
barcoded or other device that detects their
presence can bu used such as infrared, Bluetooth,
etc., and then they can become eligible for an
upgrade. The patron can register in advance that

they want to receive upgrades by providing their name, message address, e.g., email, telephone text message address, etc., and optionally their credit card or other payment mechanism for upgrades that 5 actually cost money as opposed to free upgrades.

In alternative embodiments, the patron can register at the ticket booth when purchasing their original ticket. In this scenario, the stadium representative can enter this information on 10 behalf of, and with the permission of, the patron since the patron may already be providing their credit card, debit card, etc. to purchase the original tickets. Alternatively or in addition, a kiosk may be provided where the patron can enter 15 their original ticket, e.g., scan in their original ticket and provide their name and text message information in the stadium to register for a one time upgrade for the game after purchasing, for example, a regular admission ticket.

20

In alternative embodiments, an usher can verify that the patron should be upgraded by the patron providing the confirmation number that may be transmitted in real-time by the system, and/or 25 by the patron using their original confirmation

number or original ticket with barcode or other identification means, such as a smart card, infrared reader, etc. that represents original ticket and presenting same to the user. The usher
5 then needs only to scan in the original ticket and the system will verify whether the patron associated with the original ticket is valid and whether the upgrade is valid.

10 In alternative embodiments, a warning message may be sent to the ticket holder that has not shown up to game warning them that if they do not respond within a certain time period that their seat will be re-allocated or re-assigned to
15 another patron. Similarly, a release message may be sent to the ticket holder after their seat has actually been released and/or re-allocated, thereby notifying the patron that if they change their mind in attending the game, they will have
20 to obtain an additional ticket. In alternative embodiments, the ticket holder that has their seat released and re-allocated can be themselves re-allocated a similar, worse or better seat, depending on, for example, their subscriber value
25 and/or other criteria. For example, if the patron

is provided a better seat, this will encourage them to more readily give up their seats in the future even if they are attending the game. On the other hand, if the patron is provided a worse
5 seat, then this encourages them not to artificially give up or have their seat released when attending the game. Accordingly, the present invention is designed to deal with various behavioral patterns of specific ticket holders,
10 and may optionally and advantageously be a ticket holder specific with respect to various criteria for re-assigning, releasing, selling and/or re-allocating tickets.

15 In alternative embodiments, the system transmits to the ticket holder a welcome message after being upgraded and after having been moved to a new upgraded seat location. In one embodiment, the system identifies that the patron
20 has been successfully upgraded after the patron provides the usher with a confirmation number or original ticket, which is then verified by the usher and system.

In alternative embodiments, the system, after having identified which patrons have checked into the stadium and/or have been upgraded, transmits a trivia question and/or additional 5 advertisements to all patrons attending the game.

In alternative embodiments, the information is transmitted to both patrons that are attending the game and additional patrons that have registered in the past to receive information but that are 10 not attending the game. The participants can, for example, answer trivia questions and respond with their wireless device. Depending on whether the patron is attending the game or not, the system may determine to offer or deal with each of the 15 patrons differently. For example, for patrons at the game, winners may be successively determined and narrowed, as patrons successfully and unsuccessfully answer questions, round after round of questions in a "spelling bee" format. For 20 patrons that are not attending the game, winners may be declared, or statistics provided to the broadcast station that can be aired on television. In yet additional alternative embodiments, instead of transmitting information/questions to the 25 patrons via the wireless device, the information/questions are displayed on the stadium

billboard for patrons at the game and/or on television for patrons that are watching the game on television. The patron can then merely respond via the device, e.g., the telephone accordingly
5 via a voice-to-text system or via other mobile devices via text messaging.

In alternative embodiments, the present invention provides the advantage of
10 additional advertising sponsorship to the venue. For example, in one embodiment, the venue is partitioned into different locations that may be assigned to different sponsors. In one embodiment, the sponsor that provides the most value may be
15 assigned a certain number of premium seats that are not available to other sponsors.

For example, the sponsor may offer a discount on the upgrade if you are a Verizon or
20 Verizon Wireless customer or they credit your cell account for each seat upgrade or you get say 30 free minutes, etc. In alternative embodiments, the present invention provides the advantage of one wireless provider to advertise on another wireless providers mobile phone or wireless device. For
25 example, if Verizon Wireless is a sponsor of the

upgrade system for a particular stadium, the present invention will still work with, for example, AT&T, SPRINT, and CINGULAR customers. An advertisement message sent with the upgrade offer
5 may read on the AT&T phone, "brought to you by Verizon Wireless." In an alternative embodiment of the present invention, text messaging is optionally used for mobile phones to perform the message communication of the present invention.
10 The user is only required, in one embodiment, to reply or respond with a "Yes" to accept the upgrade offer since the user has advantageously pre-registered with the system, thereby minimizing the required communication/input by the user. In
15 an alternative embodiment, the user, instead of pre-registering with the system, is charged on their wireless or even regular telephone number bill when they accept the upgrade offer. Thus, the wireless system that either administers the user's regular or wireless account or the upgrade sponsor
20 may be responsible for actually billing the customer in this alternative embodiment.

In the alternative embodiment when
25 text messaging is optionally used alone or in combination with other communication methods, the

system provides the additional advantage of maximizing bandwidth usage by not requiring use of bandwidth on the wireless voice system, thereby maximizing system resources.

5

In another alternative embodiment, the present invention optionally and advantageously provides a security and/or safety feature in the event of, for example, a minor 10 event where a parent gets separated from a child, a disaster or other event that might require evacuation of the stadium. In one embodiment, the person needing help provides their name to an attendant that can search the system for the 15 contact information of their companion/parent. The system can thereafter send an email and/or text message to the companion/parent regarding the status of that person and provide instructions for meeting that person or arranging help, authorizing 20 medical procedures, and the like. In another embodiment, the person requiring help, e.g., a child provides the attendant or kiosk with their ticket which can, e.g., scan the bar code or other reader system. The system can either automatically 25 provide a text message to the parent who can then

reply to the child/attendant via the kiosk to meet the child.

Alternatively, the parent can be
5 instructed to meet the child at a predetermined location, and to stop looking for the child because the child was found. Thus, for this example, the person who is lost or separated from their party can notify security or access a kiosk.
10 Security can, for example, notify the parent that child is in safe custody, and should not search the stadium, and therefore, meet outside stadium in a pre-specified safe place.

15 In an alternative embodiment, if a child/person is separated, the security guard/kiosk can arrange the best place to meet, either in or outside the stadium, together based
20 on an optional global positioning system (GPS). In addition, the party with the mobile device can be provided directions on where to go to meet their party from who they have been separated.

25 In an alternative embodiment, the present invention may also be used in a security, defense

and/or safety setting to direct patrons in a stadium for an orderly evacuation or notify patrons regarding status of a safety related event via, for example, a broadcast message including 5 text message, email and the like. In this manner, system communication resources may be most efficiently utilized by not over-utilizing the system via voice communication, unless completely necessary. For example, the message can be 10 broadcast in the event of an impending hurricane. In this situation, patrons in different sections get different messages, for example, to exit the stadium out of gates/exits that are either less occupied or closest to the section the patrons are 15 sitting in. Advantageously, the present invention has the patrons contact information, including optionally and advantageously text messaging, that can be broadcast or sent to different patrons. The advantage of text messaging is that the bandwidth 20 is more efficiently used in the event of an emergency, and there are no busy signals as in a voice network. Further, the message is send, and if the network is at capacity, the system can automatically resend or the message will be placed 25 in queue and sent as soon as capacity becomes available.

In another alternative embodiment of
the invention, the security bracelets of the
present invention can be required to be displayed
5 and read on exit from a venue when a parent has
reported that a child has been separated. In this
event, all patrons are checked when they exit the
stadium. The parent can report the specific seat
that the child was sitting in, and then on exit,
10 all patrons are checked. If the specific seat
appears or if a child attempts to leave without
scanning or presenting their bracelet, then that
child can be taken into custody until their parent
arrives, thereby possibly preventing abduction.

15 For instance, in sporting venues the
bracelet ticket includes the machine readable
information that comprises at least one of a bar
code and radio frequency identifier used for
20 security check in, and optionally check out. In
this manner, the standard reading machines that
can scan the bar code or RFID information can keep
track of people that have checked into the
sporting event and/or venue. Advantageously, the
25 machine readable information on the bracelet can
also be used by the venue in the event the patrons

seat assignment is modified, for example, via an electronic ticket exchange or upgrade program. In this embodiment, the visible indicia are no longer valid for the actual seating that may be
5 dynamically changed and only represents optionally an initial seat assignment. However, the machine readable information may be used as a code to reference the specific patron and assign that patron a new seat. Thus, when the ticket reader
10 scans the ticket and actually identifies, for example, the bar code, this information can be used to reference the patron, update and/or confirm the patron's current seat via the reader used, for example, by ushers in the venue, kiosk,
15 entrance to the venue, and the like.

In an alternative embodiment, the security bracelets of the present invention can be required to be displayed and read on exit from a venue when
20 a parent has reported that a child has been separated. In this event, all patrons are checked when they exit the stadium. The parent can report the specific seat that the child was sitting in, and then on exit, all patrons are checked. If the
25 specific seat appears or if a child attempts to leave without scanning or presenting their

bracelet, then that child can be taken into custody until their parent arrives, thereby possibly preventing abduction. This information, as previously mentioned, may be visually
5 cognizable for the patron and in combination, readable by electronic means if the bracelet includes a magnetic strip, bar code imprinting, or RF chip.

10 In an alternative embodiment of the present invention, the security bracelet and ticket combination of the present invention advantageously includes a bar code or other machine readable information such as a RFID
15 device. When, for example, a child is separated from their parent, the parent can notify security and the seat number associated with the child. If the child attempts to leave with their bar code/identifier, the system detects the bar code/identifier as either being valid and identifying the child that is missing or being invalid and raising another red flag. In an alternative embodiment, the bar codes/identifiers associated between children and adults correspond
20 such that the child identifier must be within a predetermined time and/or number of checking out
25

identifiers from/within the adult identifier. If this does not occur, the system determines that the child is leaving without their parent, and possibly being abducted.

5

10

15

20

In an alternative embodiment, the system links one or more tickets/identifiers together and requires the tickets/identifiers to exit the venue or event within a predetermined time period from one another and/or within a predetermined number of tickets/identifiers that have exited the venue and/or event. In the event that one ticket/identifier exits the venue or event and the associated identifier does not, then an alarm or other indictor occurs, and the attendants will detain the patrons that have initiated the alarm to for security purposes.

In an alternative embodiment, the tickets are advantageously coded with designations such as adult, child and the like. In the event a child ticket/identifier exits the stadium before the associated adult and/or more than a predetermined time period and/or number of patrons exiting, the

system can initiate an alarm so that an attendant can determine if a child has exited the venue or event without their parent or with a wrong parent potentially averting a kidnapping. In this 5 embodiment, an additional combination is the use of the standard fast pass feature, for example, at theme parks, and the like, where the venue records predetermined events that the user of the card enters in a faster line. In this embodiment, if a 10 child ticket/identifier is not associated with a parent ticket/identifier, for example, as described above, the child may be denied entry into the event or venue if not accompanied by their parent. In alternative embodiments, the 15 venue/event sponsor or organizer associates tickets upon request from the patron. In addition, in another alternative embodiment, a kiosk is provided inside and/or outside the venue for, for example, parents to register their tickets and have them associated with their children's tickets 20 to prevent the child from exiting the venue without them, for example, as described above.

In an alternative embodiment of the present 25 invention, the system and method are adapted to

utilize any type of wireless device with different interface and communication options. For example, different wireless devices have different constraints with respect to the interface, e.g.,

5 number of characters, how the subject and body of the messages are used/communicated, etc.

Accordingly, the present invention optionally provides a protocol conversion system depending on the type of wireless device and the wireless

10 device constraints, including message constraints and/or the wireless communication system. In alternative embodiments, the system determines the wireless device provider based on the address received from the wireless device, and is able to automatically determine the type of message and/or

15 message constraints and transmission constraints associated therewith based for example, on real-time information or on pre-determined stored information on the device and/or communication

20 system. Accordingly, a protocol conversion system for different wireless devices is provided by the present invention for sending and/or receiving messages, such as upgrade offers, responses, acceptances, and the like, from a variety of

25 different users/mobile devices and wireless systems.

In another alternative embodiment of the present invention, a security bracelet is advantageously utilized, for example, such as the security bracelet disclosed in U.S. application number 10/680,207, filed on October 8, 2003, to Abraham I. Reifer, et al., and incorporated herein by reference, in the event of a reported event, security breach, abduction, and the like. In this embodiment, all patrons exiting the stadium must show their ticket and/or identifier so that the venue can check all patrons out of the stadium. Thus, for example, if two kidnappers come in the stadium, and want to use one bracelet for a child, the second kidnapper will be stranded in the stadium. In addition, if one kidnapper buys two tickets, then upon exit with the child and the additional ticket, a barcode/identifier will be exiting without ever having checked in, and then the alarm will go off as well.

In another alternative embodiment, the present invention provides a broadcast message to warn patrons of an event, such as an advertisement, sale and/or even a weather related event such as a hurricane that might require the venue to be evacuated. Advantageously, in at least one

embodiment, the broadcast message comprises standard text messaging that optimizes or better utilizes capacity from the communication system. Thus, when using text messaging capabilities, the
5 present invention efficiently transmits text messages to numerous subscribers regarding, for example, exit information, contacting and/or meeting additional parties that have been separated, and the like.

10

In an alternative embodiment of the present invention, the present invention optionally provides the capability to penetrate into secondary market with season ticket holders selling ahead of time the games they will not be attending. For example, the present invention optionally provides the feature for the season ticket holder and/or general ticket purchaser the ability to view in advance of the season and/or game the schedule, and to alert the venue and/or stadium of games and/or events they will not be attending, thereby permitting the stadium/venue to attempt to resell the tickets to other patrons.
15
For example, in one embodiment of the invention, the patron is provided with a monthly schedule listing the events that may be attended. The
20
25

patron, such as a season ticket holder, may then click or place an indicator on all games they will not be attending for the season in advance, thereby providing the stadium with the ability to 5 resell tickets well in advance of the event. Once the patron completes identifying games that will not be attended, the system then compiles a list and transmits the list to the patron for an optional confirmation. This list is then used by 10 the system to release seats well in advance of the game. In an alternative embodiment of the invention, registered users of the system for, for example, upgrades, may also be notified of seat availability for sales prior to the game/event. In 15 an alternative of this embodiment, registered users may receive text messages, emails, and the like, notifying them advantageously of the availability of seats that heretofore have never been easily available to the public for sale, 20 thereby allowing the venue to participate in secondary market ticket sales.

In one alternative embodiment of the present invention, the system/process of the 25 present invention provides or operates as a middle person/broker between the ticket holder that is

returning tickets to the venue, such as the season ticket holder, and a ticket sales system and/or company, such as tickets.com, by notifying the tickets company of the newly available seats via
5 notification by the ticket holder, such as the season ticket holder of season ticket games not being attended.

In one alternative embodiment of the
10 invention, the system and/or process transmits text messages, emails and the like, to offer tickets and/or seats and/or admittance to subscribers for events and/or games with empty seats even before game. Thus, the present
15 invention allows the venue to participate in the secondary ticket sales market and the upgrade market, thereby increasing revenue and fan loyalty.
20

Of course, all of the embodiments of the present invention may be used for any reserved seating event, and/or venue that require tickets for entry thereof.

25 In another alternative embodiment of the present invention, the use of machine readable

identifiers provides advantages for, for example, the upgrade program or ticket exchange of the present invention. For example, when the upgrade, re-allocation and/or electronic ticket is issued, 5 the machine readable identifier, for example, the bar code, on the original ticket is invalidated, thereby preventing use of the invalidated ticket. Accordingly, when a new ticket holder purchases the ticket form the season ticket holder, the new 10 purchaser will be issued a new machine readable identifier, and optionally a new paper ticket. The present invention advantageously is able to handle the issuance of a new ticket and invalidates the old ticket and optionally the old identifier that 15 has, for example, been returned by the season ticket holder, thereby providing dynamic ticketing capability.

In an alternative embodiment of the 20 present invention, the new patron obtains a new identifier such as a barcode, the old bar code of, for example, the season ticket holder is invalidated. In one embodiment of the invention, season ticket holders are offered to opt in the 25 upgrade process. Various commercial incentives are possible for the season ticket holder to opt in

the upgrade process, such as monetary compensation when their ticket is used for an upgrade and/or resold whether they express their intention not to go to the game prior to the game, and the like.

5 Alternatively, season ticket holders may be offered that the cost of their season tickets will, for example, remain the same as the previous year or be reduced if they participate in the program. Therefore, the combination season ticket
10 trade-in and upgrade program in one embodiment of the invention will be beneficial to season ticket holders by allowing them to trade when they already know that they have no intention of attending a game, and allow the season ticket
15 holder to recoup some cost of the season tickets if they do not attend and their ticket is used as an upgrade. In addition, additional patrons of the event and/or sprts team are permitted to attend the game in locations/seats that they might never
20 have been able to obtain access to. Further, the venue/stadium/team maximize revenues by being able to place tickets on the secondary market when the ticket holder notifies the venue early enough that they are not attending the event, the venue also
25 obtains additional revenue from upgrades when

tickets are upgraded, and the venue obtains additional fan loyalty.

In another embodiment of the present invention, the system provides the ability to advertise via email, text messaging, and the like, for one wireless carrier on the wireless device that is using another wireless carrier. Since the user of the wireless device has requested the service, the user appropriately receives the communication from the ticketing system of the present invention, and therefore, also appropriately received the advertisement from the wireless carrier that is different than the wireless carrier that the user of the wireless may be using at that time.

In another alternative embodiment of the present invention, offers to purchase seats either during the game or even well in advance of the game are "pushed" or transmitted out to registered users that have supplied their wireless and/or Internet addresses. For example, patrons can register in advance for the upgrade and/or regular ticket offers to purchase admittance via various methods including the Internet. When seats band/or

admittance becomes available, a broadcast message or other standard messages may be transmitted to the registered patrons to notify them of the seat availability. Thus, seat offers are "pushed" to
5 registered users that have requested this service advantageously to a wireless device and/or other address including standard telephone communication, as well as additional optional advertisements. The system, in one alternative embodiment, provides the user the option when
10 registering to accept certain types of advertisements to be received on their wireless device via email and/or text messaging. In other embodiments, the user does not have the option of
15 which advertisements to receive.

Advantageously, in accordance with one alternative embodiment of the present invention, if a patron decides to attend an event such as a
20 sporting event when the patron does not have time to wait to receive paper tickets (e.g., the patron is visiting in another city/location and does not have time to wait to receive tickets via mail and is on the go), the system of the present invention transmits a ticket to the patron via, for example,
25 a wireless communication system and/or other

standard electronic communication system such as the Internet, and the patron can present their ticket, for example, on their wireless device and show up to game.

5

In another embodiment of the present invention, an interactive patron entertainment system is provided where trivia questions, for example multiple choice questions on a variety of topics, are sent to the patron via email and/or text messaging and/or displayed on the scoreboard with an address to respond, such as trivia@utixx.com. Patrons then text message and/or email and/or answer questions via voice-to-text messaging their answers. The system can then display the overall number of answers that are correct and incorrect, display bar graphs and the like to the event patrons by displaying on a display, such as the scoreboard of a sporting event. The system then identifies the patrons that have correctly answered the question and can then send new questions to be answered just to the previously correct patrons, thereby further narrowing the group of patrons. Successive questions can be sent, including questions that are not multiple choice and that require actual

10
15
20
25

text to be entered via standard wireless device
interfaces, and patrons are successively
eliminated until a single or sub-set of patrons
are determined to be the winners. Advantageously,
5 the present invention provides entertainment to
the patrons at the event by optionally providing
successive questions throughout an event. In
another alternative embodiment, simultaneously
with the questions to the patrons present at the
10 event, the present invention is also capable of
sending the questions to patrons that have
registered with the system, but are not at the
event, for example, at home watching on the
television or simply not currently involved in the
15 game. The present invention is able to transmit
the same and/or different questions to those
registered users as well. Further, in another
alternative embodiment of the present invention,
viewers watching the television, for example the
20 same event that patrons are attending, may be
presented with the same and/or different questions
as well as an address and/or telephone number to
call and provide their answer which they can
compete with patrons at the event or can be used
25 to provide a separate comparison of the answers
and/or separate winners to the contest. In this

embodiment, for example, questions may be displayed on the television, Internet website, and the like, during the event, and viewers watching the television may respond to the questions as 5 described above. The system can optionally compare the percentage of correct answers between the television viewers and the patrons at the event, and/or provide separate awards or a single award to the winners from the pool of 10 television/Internet viewers and/or patrons in the event.

In another alternative embodiment of the present invention, the system uses a seat database 15 to determine which of the reserved seats are currently in use. The system may integrate with the seat database system of a venue and/or stadium or optionally be used in parallel with the seat venue/stadium database. For example, prior to the 20 event, the system may utilize the seat database of the venue to determine available seating and patrons that do not show up after a predetermined period of time. Alternatively, the present invention can operate using a separate database 25 from the event/venue by copying or building a separate database used for the ticketing and/or

upgrading according to the present invention. In this alternative, as patrons enter the venue, they are checked in directly to this separate database. At the time of the event, the system will be able 5 to check-in patrons using either the identification system, e.g., bar code scanner, of the event or venue, or provide a separate identification system.

10 In alternative embodiments of the invention, the patron that knows they are attending the game but is going to be late can send in a HOLD message even prior to being provided a warning message that their seats are to 15 be released if the patron does not respond to the message with the HOLD request. That is, in this embodiment, since the patron already knows well in advance that they are attending the game, but perhaps stuck in traffic, the patron can initiate 20 the HOLD message before even being warned in advance of the possibility of their seat being released.

25 In another alternative embodiment, patrons that have registered with the system and optionally checked into the stadium and/or venue

in advance and who also know that they would like
an upgrade and/or ticket, may initiate their own
upgrade request to the system to notify the system
of their willingness to purchase an upgrade and/or
5 new ticket for the event/venue. The system may
then place these patrons on a higher priority
since they have already expressed and intent
and/or willingness to purchase the upgrade or
ticket. The patron may notify the event and/or
10 stadium of their willingness optionally well in
advance of the game or near/after game time at a
time which the patron commits or expresses an
additional heightened desire to upgrade and/or
purchase a ticket.

15

In alternative embodiments, the system
includes the advantage of allowing patrons to
register free for a predetermined period of time,
for example, for the first year, without paying a
20 yearly subscriber fee. Alternatively and/or in
addition thereto, the system provides the patron
with their first upgrade for free or for a reduced
rate to further encourage the patron to register
with the system and method of the present
invention. Alternatively and/or in addition
25 thereto, the system of the present invention

offers the patron reduced and/or free concessions when purchasing a membership, ticket and/or upgrade to further encourage the patron to participate in the offers of the present
5 invention.

In alternative embodiments of the present invention, the matching system and/or process, permits participants in the program to initiate a
10 message to the system with the seat location and/or name of the patron that they would like to be matched with for a meeting, networking and/or socializing such as a date. In this embodiment, the system may push the message to the other subscriber and assign new seats to the individuals
15 that are to be matched. Alternatively, the system need not require a specific confirmation that the second individual to be notified of the potential match is physically located near the first individual, but can rely on the first individual to provide that information. For example, the first individual may see a potential date in a restaurant, and may then send a message to the system with that person's name or address, that
20 they would like to meet that other individual. In that situation, the second individual will receive
25

a message of the possible match, and can respond and accept or reject the offer to meet. The second individual can then provide a meeting destination or the system can suggest a meeting place based on
5 the first individual advising the system of their location, and the location of the second individual.

In another embodiment of the present
10 invention, an interactive patron entertainment system is provided where trivia questions, for example multiple choice questions on a variety of topics, are sent to the patron via email and/or text messaging and/or displayed on the scoreboard with an address to respond, such as
15 trivia@utixx.com. Advantageously, the multiple choice questions each have unique selections, such as a1, b1, c1 and d1 for question #1; a2, b2, c2, and d2 for question #2; a3, b3, c3 and d3 for question #3, and the like. In this embodiment, the actual timing of questions is not necessary since each question and answer is unique.
20 Therefore, the speed of responding to the question is immaterial to the winner of the contest and/or correct answer. Also, in the event one patron
25 answers the question late, there will be no

confusion which question the patron is submitting an answer for. Patrons text message and/or email and/or answer questions via voice-to-text messaging their answers as indicated above using the unique set of answers, in one embodiment. In alternative embodiments, the first predetermined number of patrons that answer the question correctly are considered the winners.

10 The system can then display the overall number of answers that are correct and incorrect, e.g., a1 50%, b1 28%, c1 12% and d1 10%, and display bar graphs and the like to the event patrons by displaying on a display, such as the scoreboard of a sporting event. The system then identifies the patrons that have correctly answered the question and can then send new questions to be answered just to the previously correct patrons, thereby further narrowing the group of patrons. Successive questions can be sent, including questions that are not multiple choice and that require actual text to be entered via standard wireless device interfaces, and patrons are successively eliminated until a single or sub-set of patrons are determined to be the winners. Advantageously, the present invention

provides entertainment to the patrons at the event by optionally providing successive questions throughout an event. In another alternative embodiment, simultaneously with the questions to the patrons present at the event, the present invention is also capable of sending the questions to patrons that have registered with the system, but are not at the event, for example, at home watching on the television or simply not currently involved in the game. The present invention is able to transmit the same and/or different questions to those registered users as well.

Further, in another alternative embodiment of the present invention, viewers watching the television, for example the same event that patrons are attending, may be presented with the same and/or different questions as well as an address and/or telephone number to call and provide their answer which they can compete with patrons at the event or can be used to provide a separate comparison of the answers and/or separate winners to the contest. In this embodiment, for example, questions may be displayed on the television, Internet website, and the like, during the event, and viewers watching the television may respond to the questions as described above. The

system can optionally compare the percentage of correct answers between the television viewers and the patrons at the event, and/or provide separate awards or a single award to the winners from the
5 pool of television/Internet viewers and/or patrons in the event.

As discussed above, one or more of the above alternative embodiments may be
10 incorporated into the embodiments described above, and/or any of the embodiments discussed below. Furthermore, any of the embodiments of the present invention may be used for any reserved seating event.

15 In accordance with one observation of the present invention, mobile device and computer users increasingly face the management of many computing devices. One reason is the expansion of
20 computing environments in the home and office, as printers, scanners, digital cameras, and other peripherals are integrated into networked environments. Another reason is the proliferation of mobile devices such as laptop and palm-sized computers, cellular phones, and pagers. Because
25 these devices trade functionality for suitable

form factors and low power consumption, they are necessarily "peripheral-poor" and must therefore establish connections to neighboring devices for storage, faxing, high-speed network access, and printing. It is easy to become frustrated when dealing with the configuration and interaction of such a multitude of devices. Service discovery technologies were developed to reduce this frustration and to simplify the use of mobile devices in a network by allowing them to be "discovered," configured, and used by other devices with a minimum of manual effort. Although most of these "service discovery suites" promise similar functionality•namely, reduced configuration hassles, improved device cooperation, and automated discovery of required services•they come at the problem from different philosophical and technical approaches. Since none of these technologies is a superset of the others and none is mature enough to dominate the market, interoperation among them will require bridging mechanisms. Five competing technologies are described that may be used in conjunction with the present invention, however, other technologies may also or alternatively be used.

Bluetooth is a low-power, short-range, wireless radio system being developed by the Bluetooth Special Interest Group, and industry consortium whose member companies include Ericsson, Nokia, and IBM. The radio has a range of 10 meters and provides up to seven 1-megabit-per-second links to other Bluetooth devices.

Bluetooth operates in the 2.4-GHz industrial scientific and medical (ISM) band to maximize international acceptance and employs a frequency-hopping system to minimize interference. The low-level communications are detailed in the Bluetooth specification.

Bluetooth has a small form factor; complete systems can be as small as 2-cm square. The technology supports both isochronous and asynchronous services. A simple isochronous application might link a cellular phone and wireless headset, where the headset and base are both Bluetooth devices. More complicated applications include automatic discovery of wireless network connections and automatic synchronization of data between several Bluetooth devices.

FIG. 12 shows the Bluetooth protocol stack. At the bottom, the radio and baseband layers provide the short-range, frequency-hopping radio platform. The link manager protocol (LMP) handles data link setup and provides authentication and encryption services. The logical link control and adaptation protocol (L2CAP) supports multiplexed connectionless and connection-oriented communication over the LMP layer. L2CAP is proprietary, but other network protocols, such as IP, can be built on top of it. L2CAP is also used by higher level protocols. For example, FIG. 12 shows links to the Hayes-compatible AT (Attention) protocol, which provides a standard interface for controlling remote cellular phones and modems; RFCOMM, which emulates an RS-232 serial interface; a simple object exchange protocol (OBEX), which enhances Bluetooth's interoperability with IrDA; and Bluetooth's service discovery protocol (SDP).

Groups of up to eight Bluetooth devices can form ad hoc networks called *piconets* to communicate, share services, and synchronize data. In each piconet, a master device coordinates the

other Bluetooth devices (including setting the 1,600-hops-per-second frequency-hopping pattern). Individual devices can participate in more than one piconet at a time and can be in one of several
5 states:

- *Standby*•the device is conserving power and waiting to connect to another Bluetooth device.
- *Inquire*•the device is searching for nearby Bluetooth devices.
- 10 • *Page*•the device is connecting to another Bluetooth device.
- *Connected*•the device is connected to another Bluetooth device.
- *Hold and park*•the device is participating in a
15 piconet with varying degrees of power savings.

The Bluetooth SDP provides a simple API for enumerating the devices in range and browsing available services. It also supports *stop rules* that limit the duration of searches or the number of devices returned. Client applications use the API to search for available services either by service classes, which uniquely identify types of devices (such as printers or storage devices), or
20 by matching attributes (such as a model number or
25

supported protocol). Attributes that describe the services offered by a Bluetooth device are stored as a service record and are maintained by the device's SDP server.

5

The distinction between service classes and descriptive attributes is not well defined, but service classes generally define broad device categories, such as Printer, ColorPrinter, and PostScriptPrinter, while attributes allow a finer level of description. Manufacturers must eventually standardize these service classes for maximal interoperability between Bluetooth devices.

10

Unlike higher level service discovery technologies such as Jini, Bluetooth's SDP does not provide a mechanism for using discovered services•specific actions required to use a service must be provided by a higher level protocol. However, it does define a standard attribute ProtocolDescriptorList, which enumerates appropriate protocols for communicating with a service.

15

20

25

Bluetooth devices provide data security through unique 48-bit identifiers, 128-bit authentication keys, and 8- to 128-bit encryption keys. Strong authentication is possible because no international restrictions prevent it, but Bluetooth devices must negotiate encryption strength to comply with laws restricting encryption. Note that Bluetooth devices must be paired to provide them with matching secret keys that will support authentication. Once paired, Bluetooth devices can authenticate each other and protect sensitive data from snooping. Regardless of encryption strength, Bluetooth's fast frequency-hopping scheme makes snooping difficult.

15

Jini is a service discovery and advertisement system that relies on mobile code and leverages the platform independence of the Java language. The current Jini implementation is based on TCP and UDP, but implementations based on other network protocols are certainly possible. The major requirements are reliable, stream-oriented communication and a multicast facility. Jini's language-centric approach allows a flexible definition of service; for example, a service can be implemented entirely in software and, after

25

discovery, can be downloaded and executed entirely on the client. Examples of such algorithmic services might include an implementation of a proprietary algorithm for shading a polygon or 5 formatting a document to meet an organizational standard. On the other hand, Jini also requires each device either to run a Java virtual machine or to associate itself with a device that can execute a JVM on its behalf. For example, a Jini 10 "device chassis" might Jini-enable a number of "dumb" devices, making their services available to Jini clients.

Jini entities consist of *services*, *look up* 15 *servers* that catalog available services, and *clients* that require services. A service can also be a client; for example, a telescope might provide pictures to a PDA as a service and look for printing services as a client. All service 20 advertisements and requests go through a lookup server. FIG. 13 illustrates the discovery and registration process for Jini clients and services.

25 To register service availability or to discover services, a service or client must first

locate one or more lookup servers by using a
multicast request protocol. This request protocol
terminates with the invocation of a unicast
discovery protocol, which clients and services use
5 to communicate with a specific lookup server. The
unicast protocol culminates in the transfer of an
instance of the ServiceRegistrar class, a "remote
control" for the lookup server. A lookup server
can use the multi-cast announcement protocol to
announce its presence on the network. When a
10 lookup server invokes this protocol, clients and
services that have registered interest in
receiving announcements of new lookup services are
notified.

15

These three protocols are encapsulated in
a set of Jini classes. For example, to find
lookup services, a client or service need only
create an instance of LookupDiscovery.

20

Jini uses Java's remote method invocation
(RMI) facility for all interactions between either
a client or a service and the lookup server).
Once a lookup server has been discovered and an
25 instance of ServiceRegistrar is available,
services can register their availability, and

clients can search for needed services by involving ServiceRegistrar methods.

Jini associates a proxy, or *remote control object*, with each service instance. A service advertises its availability by registering its object in one or more lookup servers via the register() method. This method takes several arguments, including an instance of ServiceItem, which contains a universally unique identifier for the service, its attribute set, and its remote control object. This object may either implement the service entirely (in the case of an algorithmic service such as the implementation of a polygon-shading algorithm), or provide methods for accessing the service over the network. The lease duration parameter of register() specifies the service's intended lifetime. The service is responsible for renewing the lease within the time specified to maintain its listing. The lookup server is free to adjust the lease time, which is returned in a ServiceRegistration object.

When a service first contacts a lookup server, the server generates a unique identifier for it; the service uses this ID in all future

registrations. The service identifier lets clients request a specific service explicitly and recognize when services reported by different lookup servers are identical.

5

To use a service, a device must first secure an instance of the proxy object for it. From a client point of view, the location of the service proxied by this remote control object is unimportant, because the object encapsulates the 10 location of the service and the protocol necessary to operate it.

Clients use the `lookup()` method in 15 `ServiceRegistrar` to discover services. This method takes a single argument, an instance of `ServiceTemplate`. The `ServiceTemplate` constructor takes several arguments. The first is the service identifier. If the service identifier is null, 20 then arrays of types (Java classes, typically interfaces) and attributes (attribute objects) are used to match services. A service matches if its class matches of the classes in the types array and if, for each of the attribute objects, and all 25 non-null members match one of the service's registered attributes. The return value from

lookup() is an instance of ServiceMatches, which contains an array of remote control objects for the services that match. Finally, the notify() method allows a client to request an asynchronous notification when services matching a ServiceTemplate instance become available. This method uses Jini's distributed events mechanism, which extends Java's infrastructure for eventing across JVMs.

10

Jini depends on Java's security model, which provides tools like digital certificates, encryption and control over mobile code activities such as opening and accepting socket connections, reading and writing to specific files, and using native methods. Systems administrators can establish different policies depending on where the Java code originated (for example, the local file system or a remote machine).

20

Salutation is an architecture for service discovery under development by the Salutation Consortium, which includes members from both industry and academia. The consortium's goal is 5 to build a royalty-free architecture for service advertisement and discovery that is independent of a particular network transport.

FIG. 14 shows the three fundamental 10 components in the Salutation architecture: *functional units, salutation managers, and transport managers*. From a client's point of view, a functional unit defines a service. Functional units already specified or under 15 consideration by the Salutation Consortium include printing, faxing, and document storage. There is also work on a functional unit specification to allow discovery of Hewlett-Packard JetSend-enabled devices. The specifications define attributes 20 that characterize a service (for example, in the case of a printer, double-sided capability, color, and so on).

The functional unit Doc Storage defines 25 file attributes that can be used to find information in temporary or long-term storage.

For, example, a client can search for operating system-specific drivers or software necessary to interact with a newly discovered device. The client simply queries a Salutation manager for the necessary Doc Storage functional unit, extracts the application or device driver and installs it, thus providing limited code mobility.

Salutation managers function as services brokers; they help clients find needed services and let services register their availability.

Services can register and unregister functional units with the local Salutation manager by using the API calls `slmRegisterCapabilities()` and `slmUnregisterCapabilities()`, respectively. A client can use the `slmSearchCapability()` call to determine if Salutation managers have registered specific functional units. Under the current version of the architecture, applications can query only the local Salutation manager. Future versions will allow remote Salutation managers to be specified. Once a functional unit is discovered, `slmQueryCapability()` can be used to verify that a functional unit has certain capabilities. The API also includes calls for initialization/version checking, availability

checking, and communication between clients and services. (An API simulator is available at <http://www.salutation.org/simulate.htm>.)

5 Salutation managers fill a role similar to lookup servers in Jini, but they can also manage the connections between clients and services. A Salutation manager can operate in one of the three "personalities":

10

- In *native* personality, Salutation managers are used only for discovery. They establish a connection between a client and service but perform no further operations on the data stream.

15

- The *emulated* personality is similar to the native the connection, but in the case they transfer native data packets encapsulated in Salutation manager protocol format, providing a bridge when no common message protocol exists between client and service. The Salutation manager is ignorant of the semantic content of the data stream between client and service.

20

25

- In *Salutation* personality, Salutation managers establish the connection between client and

service and they also mandate the specific format of the data transferred. The Salutation architecture defines the data formats.

5 A transport manager isolates the implementation of the Salutation manager from particular transport-layer protocols and thereby gives Salutation network transport independence. To support a new network transport requires a new
10 transport manager to be written, but does not require modifications to the Salutation manager. Like Jini (and UPnP), Salutation requires a network transport protocol that supports reliable, stream-oriented communication. Initial
15 implementations are based on IP and IrDA because of their widespread use.

20 Transport managers also locate the Salutation managers on their respective network segments via either multicast, static configuration, or reference to a centralized directory. Discovery of other Salutation managers allows a particular Salutation managers to determine which functional units have been
25 registered and to allow clients access to these remote services. Communication between Salutation

managers is based on remote procedure call (RPC). This interaction between remote Salutation managers contrasts with other registry-based service discovery mechanisms (for example, Jini and Service Location Protocol), where clients would be responsible for locating remote registries. The Salutation specification currently does not address security issues.

10 A lightweight version of Salutation, called Salutation-Lite, has been developed for resource-limited devices. It is based primarily on IrDA to leverage the large number of infrared-capable devices. Salutation-Lite focuses
15 primarily on service discovery. It uses the functional units OpEnvironment and Display to describe the operating system, processor class, amount of memory and display characteristics of palm-sized devices. By noting the particular
20 characteristics of the device, servers can provide appropriate drivers and software wirelessly. Salutation-Lite implementations can be down-loaded free from the Salutation website at
<http://www.salutation.org>.

UPnP is a proposed architecture for service advertisement and discovery supported by the UPnP Forum, headed by Microsoft. Unlike Jini, which depends on mobile code, UPnP aims to standardize the protocols used by devices to communicate, using XML. The UPnP specifications is still in an preliminary stage; major issues like security have not yet been addressed.

10 UPnP's device model is hierarchical. In a compound device (for example, a VCR/TV combo), the root device is discoverable, and a client (called a *control point*) can address the individual subdevices (for example, a tuner) independently.

15 Virtual Web servers in the device act as entry points for interacting with and controlling it. Devices that don't speak UPnP directly are called *bridge devices*. They can be integrated into a UPnP network in a manner similar to the

20 integration in a Jini device chassis: A bridge maps between UPnP and device-native protocols.

The UPnP specification described device addressing, service advertisement and discovery,

device control, eventing, and presentation. The eventing facility allows clients to watch for significant changes in the state of a discovered service. It functions similarly to Jini's distributed event facility. Presentation allows a client to obtain a GUI for a discovered device's virtual Web servers. Several protocols support these functions:

- 10 ■ AutoIP, a simple protocol that allows devices to dynamically claim IP addresses in the absence of a DHCP server;
- Simple service discovery protocol (SSDP), the UPnP mechanism for service discovery and advertisement;
- 15 ■ Simple object access protocol (SOAP), a protocol for remote procedure calls based on XML and HTTP that is used for device control after discovery; and
- Generic Event Notification Architecture (GENA), a UPnP subscription-based event notification service based on HTTP.

When devices are introduced into a network, they multicast "alive" messages to control points.

When they wish to cancel availability of their services, they send "byebye" messages. In SSDP, each service has three associated IDs—service type, service name, and location—which are
5 multicast when services are advertised. Any of these IDs can also be used to search for services.

To search, a control point sends a UPD multicast request to the network, as shown in FIG. 15. Matching services send unicast responses to
10 the client. These responses contain URLs, each pointing to a XML *description document* that describes a service. A description document contains several important items:

- A *presentation URL* allows entry to a device's root page, which provides a GUI for device control.
15
- A *control URL* is the entry point to the device's control server, which accepts device-specific commands to control the device.
- An *event subscription URL* can be used by clients to subscribe to the device's event service. The client provides an *event sink URL* in the subscription request. Significant state changes
20 in the device result in a notification to the client's event sink URL.

- A service control protocol definition describes the protocol for interacting with the device.

The service control protocol (SCP) definition allows APIs to be converted to device-specific commands, shielding the application level from details of particular devices. After retrieving the description document, a UPnP component on the control point called the *rehydrator* is "plumbed" with a definition of the device's SCP. This component then sends device-specific commands via the device's control URL. SOAP is used for this interaction.

SSDP is similar to the Internet Engineering Task Force's service location protocol, but it lacks a query facility that can search for services by attributes. Further, SLP incorporates security measures and can interact with the IETF standards-track dynamic host configuration protocol (DHCP) and the lightweight directory protocol (LDAP). Finally, SSDP specifications currently limit discovery to a single subnet. Since UPnP does not use a registry, it is also likely to generate significantly more network traffic than SLP.

Service location protocol (SLP) is an IETF protocol for service discovery and advertisement as illustrated in FIG. 16. It is currently at the "proposed standard" stage along the IETF standards track. Unlike Jini, Salutation, and UPnP, which all aspire to some degree of transport-level independence, SLP is designed solely for IP-based networks. It provides a set of C and Java bindings that provide service discovery and advertisement functions to application software.

SLP comprises three entities: *service agents* (SAs), *user agents* (UAs), and *directory agents* (DAs). SAs advertise the location and attributes of available services, while UAs discover the location and attributes of services needed by client software. UAs can discover services by issuing a directory-like query to the network. DAs cache information about available services. Unlike Jini, SLP can operate without directory servers. The presence of one or more DAs can substantially improve performance, however, by reducing the number of multicast messages and the amount of network bandwidth used.

In fact, if DHCP is used to configure SLP agents

with the location of DAs, then multicast is completely unnecessary. SLP also interoperates with LDAP, so services registered with an SLP DA can be automatically registered in an LDAP directory. This eliminates the need to reconfigure clients that already discover services using LDAP.

SLP has several mechanisms for discovering DAs:

- In passive discovery, SAs and UAs listen for multicast announcements for DAs, which periodically repeat these advertisements.
- In active discovery, SAs and UAs multicast SLP requests or use DHCP to discover DAs. When a DA is present, SAs and UAs use unicast communication to, respectively, register their services and find appropriate services.

In the absence of DAs, UAs multicast requests for service and receive unicast responses directly from the SAs that control matching services. This tends to increase bandwidth consumption, but provides a simpler model,

appropriate for small networks (such as a home LAN) .

SLP services are advertised through a
5 service URL, which contains all information
necessary to contact a service. Clients use the
service URL to connect to the service. The
protocol used between the client and server is
outside the scope of the SLP specification. This
10 separation is similar to Bluetooth, where the SDP
does not specifically address how devices will
communicate.

Service templates define an attribute set
15 for each service type (a printer, for example).
The attributes include a specification of the
attribute types and information about default and
allowed values; they are used to differentiate
between services of the same type and to
20 communicate configuration information to UAs.

SLP does not define the protocols for
communication between clients and services, and so

its security model concentrates on preventing the malicious propagation of false information about service locations. SAs can include digital signatures when registering so DAs and UAs can verify their identity. Digital signatures can also be required when DAs advertise their availability, allowing UAs and SAs to avoid rogue DAs (that is, those without a proper signature). As with Jini, setting up the security features of SLP requires some configuration effort, but the effort can be well worth it, particularly in open environments.

For service discovery to become pervasive, either a single service discovery technology must dominate or the most commonly used technologies must be made interoperable. Currently, bridging seems to be the most promising prospect for interoperability.

20

Implementations of certain low-level functions of service discovery (such as discovering registries) are interchangeable. For example, the Salutation Consortium uses SLP for

service discovery beyond the local subnet. This lets the Salutation manager search for SLP DAs, and then use SLP to register functional units and search for requested services.

5

A Jini-SLP bridge has also been developed, which allows services lacking a JVM to participate in Jini system. The heart of the Jini-SLP bridge is a special SLP UA that registers the availability of "Jini-capable" SLP SAs. To do this, Jini- capable SLP services advertise the availability of a Jini driver factory. The UA discovers all SAs with driver factories and registers them with one or more Jini registered SAs, it downloads the driver factory from the lookup server and uses it to instantiate a Java object to drive the service. Note that the SLP SAs are not required to host a Java virtual machine—the Java code installed on the SAs is static. Similar schemes are possible for the other technologies; for example, it should be possible to Jini-enable UPnP services in this way.

Each service discovery technology has advantages and disadvantages. Currently, interoperability efforts are perhaps the most important force in service discovery, since it is very unlikely that device manufacturers will embrace multiple service discovery technologies on low-cost devices. Additional details regarding the above may be found in Golden G. Richard III, Service Advertisement and Discover, IEEE Internet Computing (September-October 2000), incorporated herein by reference and all references cited therein incorporated herein by reference. Additional detail is provided herewith regarding Bluetooth protocol. The Bluetooth specifications define a radio frequency (RF) wireless communication interface and the associated set of communication protocols and usage profiles.

The link speed, communication range, and transmit power level for Bluetooth were chosen to support low-cost, power-efficient, single-chip implementations of the current technology. In fact, Bluetooth is the first attempt at making a single-chip radio that can operate in the 2.4-GHz ISM (industrial, scientific, and medical) RF band.

While most early Bluetooth solutions are dual chip, vendors have recently announced single-chip versions as well. The Bluetooth specification consists of two parts: core and profiles.

5

10

The core specification defines all layers of the Bluetooth protocol stack. As shown in FIG. 17, the Bluetooth stack differs from the classical seven-layer networking model in some ways. These differences are primarily to support ad hoc connectivity among participating nodes, while conserving power and accommodating devices that lack resources to support all layers of the classical networking stack.

15

20

The radio is the lowest layer. Its interface specification defines the characteristics of the radio front end, frequency bands, channel arrangements, permissible transmit power levels, and receiver sensitivity level. The next layer is the baseband, which carries out Bluetooth's physical (PHY) and media access control (MAC) processing. This includes tasks such as device discovery, link formation, and

5 synchronous and asynchronous communication with peers. Bluetooth peers must exchange several control messages for the purpose of configuring and managing the baseband connections. These message definitions are part of the link manager protocol (LMP). The functional entity responsible for carrying out the processing associated with LMP is called the *link manager*.

10 Bluetooth is unique in offering the front-end RF processing integrated with the baseband module. On-chip integration lowers the cost of the network interface, and the small size makes it easy to embed Bluetooth chips in devices such as cell phones and PDAs. A Bluetooth chip can be connected to its host processor using USB, UART, or PC-card interfaces.

15

20 The Host Controller Interface (HCI) specification defines a standard interface-independent method of communicating with the Bluetooth chip. The software stack on the host processor communicates with the Bluetooth hardware using HCI commands. Since no hardware-specific

knowledge is needed, the Bluetooth stack software can easily be ported from one Bluetooth chip to another. The HCI layer is part of the Bluetooth stack, but it does not constitute a peer-to-peer communication layer since the HCI command and response messages do not flow over the air link.

The logical link control and adaptation protocol (L2CAP) specification can be viewed as Bluetooth's link layer. Usually, L2CAP and layers above it are implemented in software. L2CAP delivers packets received from higher layers to the other end of the link. Bluetooth devices can establish an L2CAP connection as soon as they are in range of each other. A client device then needs to discover the services provided by the server device. The service discovery protocol (SDP) defines the means by which the client device can discover services as well as their attributes. The SDP design has been optimized for Bluetooth. It defines only the discovery mechanisms; the methods for accessing those services are outside its scope.

The RFCOMM specification defines a method of emulating the RS-232 cable connection on top of the Bluetooth airlink. RFCOMM supports legacy applications that use the COM port to communicate with the peer host. For example, point-to-point (PPP) protocols expect a serial line interface from the lower layer. Since PPP provides a packet-oriented interface to the higher layers, all packet-based network and transport protocols, including TCP/IP, can be supported on top of PPP. More efficient methods of running IP over Bluetooth are currently under development.

Vendors can use the services offered by the Bluetooth stack to create a variety of applications. Because interoperability is crucial to Bluetooth's operation, the Bluetooth SIG has defined profile specifications to support it. The profiles specify controller and stack parameter settings as well as the features and procedures required for interworking among Bluetooth devices. All vendor implementations of these profiles are expected to be interoperable. The Bluetooth certification authority uses the profiles to test and certify compliance, and grants use of the

Bluetooth logo only to products that conform to the methods and procedures defined in the profiles.

5 The 2.4-GHz ISM band in which Bluetooth operates is globally available for license-free use. Europe and the United States allocate 83.5 MHz to this band, but Spain, France, and Japan allocate less. To accommodate these differences,
10 79 channels spaced 1 MHz apart are defined for Europe and the U.S., and 23 RF channels spaced 1 MHz apart are defined for Spain, France, and Japan. Efforts are under way to open up the full width of the spectrum in Spain and France, as well
15 as in Japan so that Bluetooth devices would function worldwide.

20 Bluetooth is a frequency-hopping spread-spectrum system. This means that the radio hops through the full spectrum of 79 or 23 RF channels using a pseudorandom hopping sequence. The hopping rate of 1,600 hops per second provides good immunity against other sources of interference in the 2.4-GHz band. The link speed
25 is 1 Mbps, which is easily achieved using a simple

modulation technique (Gaussian Frequency Shift Keying, or GFSK). A more complex modulation technique could achieve a higher rate, but GFSK keeps the radio design simple and low cost.

5

The radio front end is usually the most costly part of a wireless network interface. In typical radio receivers, the RF filters, oscillators, and image-reject mixers process input signals at high frequencies. Such circuits require expensive materials. To keep costs down, Bluetooth recommends shifting the input signal to a lower intermediate frequency (IF, around 3 MHz), which allows on-chip construction of low-power filters using CMOS material. Shifting to low IF, however, creates new problems, such as reduced receiver sensitivity. Recommended receiver sensitivity for Bluetooth is -70 dBm or better. The comparable number for IEEE 802.11 Wireless LANs is about -90 dBm). Thus, for the same transmit power, the range for Bluetooth is shorter than it is for 802.11 WLAN.

A set of Bluetooth devices sharing a common channel is called a *piconet*. A piconet is a star-shaped configuration in which the device at the center performs the role of *master* and all other devices operate as *slaves*. Up to seven slaves can be active and served simultaneously by the master. If the master needs to communicate with more than seven devices, it can do so by first instructing active slave devices to switch to low-power park mode and then inviting other parked slaves to become active in the piconet. This juggling act can be repeated, which allows a master to serve a large number of slaves.

Most envisioned Bluetooth applications involve local communication among small groups of devices. A piconet configuration consisting of two, three, or up to eight devices is ideally suited to meet the communication needs of such applications. When many groups of devices need to be active simultaneously, each group can form a separate piconet. The slave nodes in each piconet stay synchronized with the master clock and hop according to a channel-hopping sequence that is a function of the master's node address. Since

channel-hopping sequences are pseudorandom, the probability of collision among piconets is small. Piconets with overlapping coverage can coexist and operate independently. Nonetheless, when the 5 degree of overlap is high, the performance of each piconet starts to degrade.

In some usage scenarios, however, devices in different piconets may need to communicate with 10 each other. Bluetooth defines a structure called scatternet to facilitate interpiconet communication. A scatternet is formed by interconnecting multiple piconets. As shown on the right side of FIG. 17, the connections are 15 formed by bridge nodes, which are members of two or more piconets. A bridge node participates in each member piconet on a time-sharing basis. After staying in a piconet for some time, the bridge can turn to another piconet by switching to 20 its hopping sequence. By cycling through all member piconets, the bridge node can send and receive packets in each piconet and also forward packets from one piconet to another.

A bridge node can be a slave in both piconets or be a slave in one and a master in another. For example, consider a room full of people, where each person has a cell phone and a
5 cordless headset. When users speak into their headsets, only the cell phones paired with their headsets should pick up the signal. In this example, each headset and cell phone pair constitutes a separate piconet. Now suppose these
10 users also want to send text messages from their cell phones to one another. This will be possible only if all piconets are interconnected to form a large scatternet.

15 Bluetooth uses a procedure known as *inquiry* for discovering other devices; it uses paging to subsequently establish connections with them. Both inquiry and paging are asymmetric procedures. In other words, they involve the inquirer and the
20 inquired (as well as the pager or the paged) devices to perform different actions. This implies that when two nodes set up a connection, each needs to start from a different initial state; otherwise, they would never discover each
25 other. The profile specifications play an

important role here, defining the required initial state for each device in all usage scenarios. A symmetric procedure for establishing connections is an ongoing topic of research.

5

The inquiry and paging are conceptually simple operations, but the frequency-hopping nature of the physical layer makes the low-level details quite complex. Two nodes cannot exchange 10 messages until they agree to a common channel-hopping sequence as well as the correct phase within the chosen sequence. Bluetooth solves this problem simply by mandating the use of a specific inquiry-hopping sequence known to all devices. 15 During inquiry, both nodes (one is the listener and the other is the sender) hop using the same sequence; but the sender hops faster than the listener, transmitting a signal on each channel and listening between transmissions for an answer. 20 When more than one listener is present, their replies may collide. To avoid the collision, listeners defer their replies until expiration of a random backoff timer. Eventually the sender device collects some basic information from the 25 listeners, such as the device address and the

clock offsets. This information is subsequently used to page the selected listener device.

The communication steps during the paging procedure are similar, except that the paging message is unicast to a selected listener, so the listener need not back off before replying. The sender also has a better estimate of the listener's clock, which enables it to communicate with the listener almost instantaneously. Upon receiving an ACK for the paging message, the sender becomes the master and the listener becomes the slave of the newly formed piconet, and both nodes switch to the piconet's channel-hopping sequence. Later, if necessary, the master and slave roles can be swapped.

The steps for admitting a new slave into an existing piconet are slightly more complex. The master can either start discovering new nodes in its neighborhood and invite them to join the piconet or, instead, wait in scan (listen) state and be discovered by other nodes. With both options, communication in the original piconet

must be suspended for the duration of the inquiry and paging process. The latency of admitting a new node into the piconet can be large if the master does not switch to the inquiry or scan modes frequently. This latency can be reduced only at the cost of some piconet capacity. The study of this trade-off is another topic of ongoing research.

10 Bluetooth offers different low-power modes for improving battery life. Piconets are formed on demand when communication among devices is ready to take place. At all other times, devices can be either turned off or programmed to wake up periodically to send or receive inquiry messages.

15 When a piconet is active, the slaves stay powered on to communicate with the master. It is possible to switch a slave into a low-power mode whereby it sleeps most of the time and wakes up only periodically.

20

Three types of low-power modes have been defined:

- *Hold mode* is used when a device should be put to sleep for a specified length of time. As described earlier, the master can put all its slaves in the hold mode to suspend activity in the current piconet while it searches for new members and invites them to join.
5
- *Sniff mode* is used to put a slave in a low-duty cycle mode, whereby it wakes up periodically to communicate with the master.
- 10 • *Park mode* is similar to the sniff mode, but it is used to stay synchronized with the master without being an active member of the piconet. The park mode enables the master to admit more than seven slaves in its piconet.

15

As soon as a piconet is formed, communication between the master and the slave nodes can begin. The piconet channel is divided into 625-microsecond intervals, called slots, where a different hop frequency is used for each slot.
20 The channel is shared between the master and the slave nodes using a frequency-hop/time-division-duplex (FH/TDD) scheme whereby master-slave and slavemaster communications take turns. Slave-to-

slave communication is not supported at the piconet layer. If two slaves need to communicate peer to peer, they can either form a separate piconet or use a higher layer protocol, such as IP
5 over PPP, to relay the messages via the master.

At a 1-Mbps link speed, a 625 microsecond slot time is equivalent to the transmission time of 625 bits. However, a single slot packet size in Bluetooth is only 366 bits. This reserves enough
10 guard time to let the frequency synthesizers hop to the next channel frequency and stabilize. Discounting space for the headers leaves 30 bytes for the user payload.

15 To transmit real-time voice, an application must reserve a slot in both directions at regular intervals. In Bluetooth terminology, this is called a synchronous (SCO) link. An SCO link can transport telephone-grade voice. The
20 speech coder generates 10 bytes every 1.25 milliseconds. Since a baseband packet can carry up to 30 bytes in each slot, only one slot in each direction is needed every 3.75 ms (or every sixth slot). The packet type that carries 30 voice
25 bytes is called an HV3 packet. This packet is

transmitted without coding or protection, and is not retransmitted if it is lost.

To cope with bit errors when the channel
5 conditions are not perfect, some forward error correction (FEC) should be added to the voice payload. An HV2 packet carries 20 bytes of voice plus 10 bytes of redundant data (2/3 FEC code). Since 20 bytes of speech is generated in 2.5 ms,
10 the SCO link should reserve one slot in each direction every 2.5 ms (or every fourth slot). To cope with extreme channel conditions, the baseband specification also defines an HV1 packet that carries only 10 bytes of speech and 20 bytes of
15 FEC code. An HV 1 SCO link uses up the entire channel capacity. This means that all data transfer sessions will be suspended when an HV 1 SCO connection is in progress.

20 Data communication between a master-slave pair involves a different set of considerations. For example, the data payload must be protected by a cyclic redundancy check (CRC) so that the receiver can determine whether the received bits
25 are in error. When losses occur, the baseband

layer should retransmit the data. Furthermore, to make efficient use of the piconet channel, slots should be allocated on demand, instead of being reserved for the usage duration. A data path between a master-slave pair meeting all of these requirements is called an asynchronous data link (ACL). SCO links have priority over data, so ACLs can claim only unused slots. Only a single ACL can exist between a master and a slave.

10

The master is responsible for distributing available slots among all ACLs. This scheme has two advantages:

15

- the master can ensure that the slave transmissions do not collide; and
- the slots can be allocated to satisfy the quality of service (QoS) requirement of each ACL. The master can grant more bandwidth to a slave by polling it more frequently or by changing the packet size.

20

The baseband specification does not mandate the use of any specific slot-allocation scheme. Chip vendors can choose any policy that fits their target applications. As with SCO packets, the payload size of singleslot ACL packets is limited to 30 bytes. After discounting space for the higher layer headers and the CRC, only 27 bytes are left to transport application data. When FEC is added, the available space goes down to 17 bytes. To improve channel efficiency, the baseband specification has defined multislot packets, which are three or five slots long and transmitted in consecutive slots. The transmitter stays fixed on a hop frequency during the length of packet transmission and skips over the missed hops after the transmission is complete. This reduces the effective channel-hopping rate, but increases the channel efficiency because of fewer hops. Although link speed is 1 Mbps, achievable aggregate throughput can range from 217.6 Kbps to 780.8 Kbps. The presence of an HV3 or HV2 SCO link significantly reduces the achievable throughput of an ACL.

L2CAP can be viewed as the data plane of the Bluetooth link layer (see FIG. 18). Because the baseband packet size is too small for transporting higher layer packets, a thin layer is needed for exporting a bigger packet size to the higher layers. While a number of generic segmentation and reassembly protocols could be used or adapted for use over ACLs, the Bluetooth SIG instead defined L2CAP, which is highly optimized to work in conjunction with the baseband layer. For example, L2CAP does not support integrity checks because the baseband packets are already CRC protected. Likewise, it is assumed that the lower layer delivers packets both reliably and in sequence. These two assumptions significantly simplify the design of segmentation and reassembly logic. The only caveat is that L2CAP will not work if used over any media other than the Bluetooth baseband.

20

The multiplexing and demultiplexing of higher layer protocols is supported using channels, multiple instances of which can be created between any two L2CAP endpoints. Each higher layer protocol or data stream is carried in

25

a different channel. The L2CAP channels are connection oriented in the sense that they require an explicit phase to establish the channel, during which both ends choose a local name (channel identifier) and communicate it to the other end. Subsequently, each packet sent over the channel is tagged with the channel identifier, which-within the context of the receiver-uniquely identifies the source as well as the protocol being transported over the channel. The L2CAP specification also defines a connectionless channel for supporting broadcast and multicast group communication, but this feature is not yet fully developed.

15

Both ends of a Bluetooth link must support compatible sets of protocols and applications to successfully exchange data. In some cases it may also be necessary to configure protocol and stack parameter settings before applications can be started. Such configuration settings cannot be chosen statically, since some parameters may require adjustment to match the features and services supported by the peer Bluetooth device.

25

Bluetooth's SDP provides a standard means for a Bluetooth device to query and discover services supported by a peer Bluetooth device. SDP is a client-server protocol. The server maintains a
5 list junction with the baseband layer. For example, of service records, which describe the characteristics of services hosted at the server. By issuing SDP queries, a client can browse all available service records maintained at the server
10 or retrieve specific attribute values from a service record.

In addition to defining query and response protocol formats, the SDP specification also
15 defines a standard method for describing service attributes. Service attributes are represented using an <identifier, value> pair. The 1.1 Bluetooth specification defines some of the commonly used services, but developers have the
20 freedom to define new subclasses of the standard services or to create new services on their own.

Since new service definitions do not require any coordination with the Bluetooth SIG numbering

authority, it is necessary to ensure that two independently created service definitions do not conflict. Collisions are avoided by associating each service definition with a universally unique identifier (QUID) which is generated once at the time a service is defined. UUIDs of the services defined by the Bluetooth SIG are included in the assigned numbers document.

10 If the client already knows the QUID of the service it is looking for, it can query the SDP server for specific service attributes. Alternatively, the client can browse the list of available services and select from the list.

15 These are the only two search options supported in SDP. Although other IP-based service discovery protocols, such as SLP and Jini, provide richer service description schema and more powerful search capabilities, the Bluetooth SDP has two

20 advantages:

- The majority of version-1.1-compliant Bluetooth devices will be non-IP devices. Requiring them to support IP only for the sake of supporting SLP would be costly.

- SDP is optimized to run over L2CAP. Its limited search capabilities and non-text-based attribute-id and attribute-value descriptions lend an efficient and small footprint implementation for
5 small devices.

SDP provides a mechanism only for retrieving service information from other devices. Methods of invoking those services are outside the scope of SDP. Before a device can establish the L2CAP channel, the link manager must carry out a number of baseband-specific actions, such as piconet creation, master-slave role assignments, and link configuration. These functions belong to the control plane of the Bluetooth link layer and require the link manager to exchange LMP messages over the air link. Depending on the operating environment, the link manager must adjust a number of piconet and link-specific parameters. For example, the peer-link controller can be instructed to switch to a low-power mode, adjust its power level, increase the packet size, and change the requested QoS on an ACL.
10
15
20

Security can also be configured using LMP messages. Before a data or voice exchange can
25

begin, Bluetooth devices should be able to authenticate each other. Likewise, transmission over the air link must be encrypted to provide protection from eavesdroppers. Both objectives
5 are easy to achieve when a security association already exists between a pair of devices. The link manager can use the shared secret key to verify the peer device's authenticity as well as to negotiate a link key for encryption. A typical
10 session between two Bluetooth devices begins with the formation of a piconet, followed by the exchange of LMP messages first to authenticate and then to negotiate new encryption keys with the peer device. Only upon successful completion of
15 the LMP handshake can further data exchange or voice communication take place.

The level of security built into the version 1.1 specifications is satisfactory so long as the
20 initial security associations are computed in a secure fashion. The baseband and LMP specifications also define a method, called pairing, for creating a new security association between two devices when they pair for the first time. The method uses an out-of-band channel for
25

creating a security association, which is then used as a seed to compute a cryptographically secure shared secret key. By out-of-band channel a user typing a randomly chosen PIN number on both devices is meant. The security of a pairing phase is limited by a user's ability to choose good PIN numbers. In scenarios when one device in the pair does not have a keypad, security can be further compromised if the chosen PIN is transmitted to the other device in clear text.

The ultimate objective of the Bluetooth specifications is to allow multivendor applications to interoperate. Different applications may run on different devices, and each device may use a protocol stack from one vendor and a Bluetooth chip from another. Yet interoperability among applications is achieved when different implementations comply with the same core and profiles specifications. At the lowest layer, Bluetooth chips from different vendors interoperate over the air link because all Bluetooth chips implement the baseband and LMP specifications. Bluetooth stacks, which can be implemented as either firmware or software,

include the L2CAP, SDP, and RFCOMM layers. It is relatively easy to port a Bluetooth stack from one platform to another because the lowest layer of a Bluetooth stack interfaces with a Bluetooth chip via a standard HCI interface which is also a part of the 1. 1 specifications.

Porting a Bluetooth application from one stack to another, however, is more difficult. The 10 application can use any standard API to access 1P, PPP OBEX, or RFCOMM layers of the Bluetooth stack, but there is no standard API to access the control functions provided by the Bluetooth stack. For example, if an application were to initiate a 15 Bluetooth inquiry to discover other devices in its neighborhood, it must use an API specific to the stack vendor to access those functions. Additional details regarding the above may be found in Ron Schneiderman, Bluettotth's Slow Dawn, IEEE Spectrum (November 2000), incorporated herein by reference 20 and all references cited there incorporated herein by reference.

FIG. 19 is an illustration of a Bluetooth transmitter that upconverts the baseband information to the frequency-modulated carrier. Frequency hopping and bursting are performed at 5 this level. Conversely, the Bluetooth receiver downconverts and demodulates the RF signal as illustrated in FIG. 19. The Bluetooth channels are each 1 MHz wide. Frequency hopping occurs over 79 channels.

10 Although originally thought of simply as a replacement for the unseemly nest of wires that connects PCs to keyboards and printers, Bluetooth quickly evolved into a system that will allow people to detect and communicate with each other 15 through a variety of mainly portable devices without their users' intervention. Bluetooth-enabled devices will be able to "talk" to each other as they come into range, which is about 10 meters, although this figure can be extended to 20 more than 100 meters by increasing the transmit power from a nominal 1 mW to as much as 100 mW.

25 With Bluetooth technology, you can send e-mail from the computer on your lap to the cellular phone in your briefcase. Your Bluetooth-linked cell phone or similarly equipped PDA can

automatically synchronize with your desktop PC whenever you pass it within Bluetooth range. Or, you can have hands-free communications between a Bluetooth-enabled headset and a cell phone, or you
5 can download images from a digital camera to a PC or cell phone.

10 Critical mass is critical to Bluetooth's success. Bluetooth technology is expected to make its debut in cell phones and PDAs, but then will move quickly into notebook and laptop computers, printers, scanners, digital cameras, household appliances, security/remote access, games, toys, and more. Ericsson, which started it all with the
15 development of the Bluetooth concept, has already announced several Bluetooth products, including a headset, a PC Card for laptops and PDAs, and two Bluetooth cell phones. A Bluetooth keyboard and mouse are on the drawing board.
20

Nokia and Fujifilm are working on a mobile imaging technology they believe would enable Nokia to add a Bluetooth chip to its clamshell-shaped 9110 Communicator so that it could receive images
25 taken on a Bluetooth-equipped Fujifilm digital camera. After the addition of a few lines of

text, the received photographs can be sent to another Nokia Communicator, or to the Fujifilm Web service, where it can be viewed, printed, or burned into a CD-ROM. Finnish telecom operator
5 Sonera has even demonstrated a Bluetooth-enabled vending machine-consumers buy products out of the machine by simply signaling an account code from a Bluetooth cell phone or PDA. The code would debit the user's account based on the code. Eventually,
10 cell phones and PDAs are expected to be able to display personal bar codes, which can be read by a vending machine scanner.

The Gartner Group calls it the
15 Supranet-the wireless connection of data and transactions between the hard-wire Internet, wireless devices such as cell phones and PDAs, and the "papernet," meaning the physical world of business cards and legal documents. Emerging
20 seamless connections will deliver a whole host of new technologies, according to Gartner, with one of the first integral technologies to be tied to the Supranet being Bluetooth. By 2004, according to Gartner, 70 percent of new cell phones and 40
25 percent of the new PDAs will use wireless technology for direct access to Web content and

enterprise networks. Gartner believes that Bluetooth is set to become a defining force in portable electronic products.

In what the Bluetooth community calls "unconscious" or "hidden" computing, Bluetooth-enabled products will automatically seek each other out and configure themselves into networks-most often, with just two nodes. Though small, such networks can be quite useful. They can forward e-mail received on a cellular phone in a person's pocket to the notebook or laptop computer in his or her briefcase; they can download data from a digital camera to a PC or cell phone; or they can alert their owners as they pass a Bluetooth-enabled vending machine.

Bluetooth can serve as a means for connecting laptop computers or other devices to the public Internet in airport lounges and conference centers through permanent access points. It can also enable its user to exchange business cards with everyone passed on the street through a Bluetooth-enabled Palm-but not unless it has been given permission to identify the user to anyone or anything, which, according to a Merrill Lynch report on Bluetooth, "opens up whole new blind dating opportunities."

More than 2000 organizations have joined the Bluetooth Special Interest Group (SIG) and most of them are currently developing Bluetooth-enabled products under a specification developed by the group. The IEEE 802.15 Personal Area Network (PAN) Working Group, formed early last year, has made Bluetooth the foundation for a range of consumer network products, most of them portable. The PAN Working Group is currently developing a 1-Mb/s standard based on the work of the Bluetooth SIG, and hopes to define a "consumer-priced," 20-Mb/s or faster wireless personal area network that can be widely deployed for shortrange information transfer.

The principal issue with Bluetooth is interoperability. Few of these products have met the Special Interest Group's requirements for interoperability or been tested under actual use conditions. One reason is that the qualification program was launched before conformance-test systems had been validated and were available. Not surprisingly, Bluetooth components are coming out later than expected and manufacturing capacity is limited. Another obstacle: Bluetooth products

must be tested at a qualified test facility to ensure compliance with the Bluetooth specification. But no qualification test facilities are currently listed on the official 5 Bluetooth Web site, as required by the Bluetooth consortium. True, some test equipment has been delivered with Bluetooth test features-Teradyne's MicroWAVE6000 instrumentation suite, for example. But no "official" or validated test hardware was 10 available to manufacturers as of early October. Since interoperability is the be-all and end-all of Bluetooth, there is no point in coming out with a product until the spec is finalized or until some other means is in place for verifying that 15 the item has a very good chance of working with other Bluetooth products when they become available.

Few of those involved are more frustrated 20 than the Special Interest Group's Promoter Group. It was formed late last year by 3Com, Lucent Technologies, Microsoft, and Motorola, and joined by SIG's original founders-Ericsson, IBM, Intel, Nokia, and Toshiba. Its charter is to lead the 25 Special Interest Group's development of Bluetooth technology and promote interoperability among

members' products. Investments of resources have been huge-Microsoft Corp., Redmond, Wash., for example, reportedly has at least 60 people working on Bluetooth issues at least some of the time. To 5 help speed Bluetooth products to market, the Interest Group has created what amounts to an interim qualification program with somewhat relaxed interoperability testing.

10 Tests of Bluetooth products and devices are now being done against designated protocol test products called Blue Units. These are based on development kits designed by the Cadence Symbionics Group, Cambridge, UK (part of Cadence Design Systems, San Jose, Calif.) and available 15 through Symbionics and Sweden's Ericsson Microelectronics AB, AU System, and Sigma ComTec. The development kits comprise baseband and radio boards, interfaces (universal serial bus ports, 20 phone jacks, and RS-232-C ports), host software, accessories, and documentation. They were created to enable first-time Bluetooth design engineers to accelerate the development of prototype products and devices.

25

But Blue Units do not carry the weight of full compliance with the Bluetooth spec; they are simply test beds to be used to establish confidence in key Bluetooth protocols. While they
5 can test a number of key functions, their use is limited to partial testing of the baseband and link manager software. Blue Units cannot, for example, be used to test the logical link control and adaptation protocol, which adapts upper-layer
10 protocols over the baseband; nor can it test the service discovery protocol, which Bluetooth units use to learn about the capabilities of other Bluetooth units.

15 The tests a product manufacturer has to pass to qualify a product for a Bluetooth trademark are divided into four areas:

- 20 • Radio frequency qualification testing.
- Protocol conformance testing.
- Profile conformance testing.
- Profile interoperability testing.

25 Protocols describe how Bluetooth-enabled devices perform such basic tasks as service discovery, telephony signaling, and link

management. Profiles specify which basic protocols and procedures are required for specific categories of Bluetooth devices and applications, like cordless telephones, headsets and faxing.

5 Profiles are the primary means for achieving interoperability among Bluetooth-enabled devices.

Currently available profiles cover cordless telephony, intercoms, serial ports, 10 headsets, fax machines, local-area network access, file transfer, and dial-up networking. One group, chaired by Philips Semiconductor, Sunnyvale, Calif., expects to complete a written specification on three audio and three video 15 applications by mid-2001. More than simply replacing cables for wireless speakers using Bluetooth technology, the group aspires to create applications that will make audio/video equipment interoperable with assorted consumer electronic 20 products, as in moving data between a Bluetooth-enabled cell phone and a PC, or remotely changing channels and controlling the volume on television sets. Bluetooth accessories, such as PC Cards and USB dongles (security devices), are treated 25 differently: they may be submitted for complete

qualification testing only when they are installed in a host product.

Other working groups within the Special Interest Group are writing profiles for printing, imaging, location positioning, human interface devices, and personal area networks. Medical, automotive, and some other Bluetooth applications will require additional product certification.

Naturally, qualification requirements are expected to evolve as test equipment and procedures become available. In the meantime, designers must pass a series of tests based on four test reference categories established by the Bluetooth consortium. The categories range from merely informative, through self-testing, to full testing by a certified test facility using a validated reference test system. Since no validated test systems are yet available, the Special Interest Group is for the time being waiving the most rigorous category for manufacturers who pass the less strict of the categories and who successfully test their products against a Blue Unit.

Even that may not do the trick, though. The Category A [most rigorous] test gives a

certain level of confidence that you will be interoperable with other Bluetooth devices," said Cedric Paillard, product marketing manager of Conexant Systems Inc. "It doesn't guarantee that 5 you will be interoperable in the real world." Conexant acquired Ontario-based Philsar Semiconductor earlier this year to help speed its entry into the Bluetooth chip market. At some point, when the necessary tools are in place, 10 Bluetooth products will show that they are interoperable with what is called a "Golden Unit" -a SIG-designated unit that has passed all the required qualification and conformance tests.

15 Because Bluetooth is still in its early development stages, test methodologies differ from those typical of more highly developed technologies. A Bluetooth application note suggests that Bluetooth test procedures may 20 require manual intervention or custom software control, as opposed to mature technologies in which easy-to-use, one-button measurements are available. Part of the problem is that it has taken a long time for test houses to develop 25 equipment with Bluetooth features, so that many Bluetooth designers have been forced to create

their own test sequences and methods based on Bluetooth specifications.

A Bluetooth Design-Guide is essentially an
5 application layer that may be added to Agilent's Advanced Design System. It contains system test benches and reference designs, such as an optimal low-intermediate frequency (IF) receiver, for part of the RF portion of the Bluetooth physical layer.

10 The Tektronix CMU200 universal radio communications tester is a multi-standard test set for mobile phones with Bluetooth test features.

Teradyne has shipped its MicroWAVE6000 instrumentation suite for testing Bluetooth radios 15 and ICs to Ericsson, Oki, and Cambridge Silicon Radio, and has said it has several other customers lined up.

20 Qualification grants companies the worldwide right to incorporate Bluetooth wireless technology in their products, and to use the Bluetooth trademark; but even the trademark does not guarantee that a product complies fully with 25 Bluetooth specifications. Passing the qualification program demonstrates a certain measure of compliance and interoperability, but as

the Bluetooth SIG notes in its own literature-because products are not tested for every aspect of the Bluetooth specification, qualification does not guarantee compliance. In 5 the final analysis, each manufacturer is responsible for ensuring that its products will interoperate with products from other Bluetooth manufacturers.

10 In accordance with one embodiment of the invention, an access Control and Session Management in the HTTP Environment is provided where a role-based access-control model is stored as LDAP objects in a security architecture. As the 15 only ubiquitous public data network, the Internet offers business partners a communications channel that previously existed only in unique situations with private, special-purpose networks. Well-publicized security risks, however, have limited the deployment of business-to-business extranets, which typically use the Internet's public data 20 network infrastructure. These risks extend behind firewalls to *intranets*, where any user gaining entry to a facility is often implicitly 25 authenticated to access unprotected services by

simply plugging a portable computer into an unused network port.

Role-based access controls (RBACs) and Web
5 session management to protect against network security breaches in the HTTP environment is providede. The RBAC and session management services augment network-level security, such as firewalls, inherent in the deployment of any Web-based system with untrusted interfaces. The RBACs are implemented through the Internet Engineering Task Force's Lightweight Directory Access Protocol (for IETF documents relevant to LDAP and other Internet protocols. Session management is
10 implemented through cryptographically secured, cookie-based ticket mechanisms.
15

Role-based access controls are not part of the typical Web server software set. The HTTP
20 RFCs specify a "401:WWW-Authenticate" server response-essentially a logon challenge-for authentication and access control. The notion of a *security realm* applies: a typical security realm comprises a tree or subtree of URLs for a given server. Because each realm must map to unique URL
25 prefixes, security realms are mutually exclusive.

When a Web client requests a URL from a server,
the server checks the URL against its list of
realms for a prefix match. For each realm, there
is a corresponding access control list (ACL) that
specifies-either explicitly or through a set of
rules-which users are allowed access to URLs in
the realm, and which users are denied.
5

Secure realms are useful for gross access
control to a Web site. But each realm requires
authentication for access, so the user task of
supplying a name and password quickly becomes
burdensome. The need to differentiate user roles
magnifies the problem: few businesses want to
15 maintain distinct and largely redundant Web sites
and content for each user role in their
authorization base. An additional, more subtle
problem arises with the need to dynamically
generate content and control the visible link set
20 (that is, those URLs that we know in advance a
user is authorized to access, as in a search
result). Given the issues of user complexity and
Web site maintainability, secure realms are not
feasible in the implementation of an RBAC security
model. the approach described in this article
25 shows how to address these issues by using network

authentication services-such as LDAP, Sun Microsystems NIS, and Microsoft's NT domains-together with an RBAC model stored as LDAP objects and secured session ticket.

5

The problems of entity authentication, resource-access authorization, and session management are not unique to the HTTP environment. In custom client-server systems. sessions are explicitly maintained by persistent network connections and state information shared between client and server applications. the request-response-disconnect nature of HTTP precludes any shared, connection-oriented state between client and Web server, inso-far as that state is based on the protocol itself.

RFC 2109 describes a state management mechanism more generally known as a session ticket. RFCs 2068 and 2616 specify HTTP's basic authentication mechanism, which is simply a user-ID and password encoded in Base64 and included as part of the HTTP request headers. From a security viewpoint, Base64 is essentially cleartext.

Unless transport layer security (TLS, RFC 2246) or

25

secure sockets layer (SSL) encryption is used,
this is not a secure method for authentication.

5 RFC 2595 recently proposed starting a TLS
session to protect what would otherwise be
cleartext password authentication for three
Internet standard protocols. Following this
proposal, a server would augment its advertised
capability set to include a "start TLS"
10 capability. A client would issue this start
command, re-determine the server's capabilities,
and then perform the authentication steps of the
protocol with the transport layer encryption
protecting the exchange. The message digest
15 authentication proposed in RFC 2617 is a type of
challenge-response authentication protocol that
does not transmit any cleartext passwords.

20 Role-based access control provides a rich
model for managing information and its accessors.
Many other security models can be represented as
subsets or simplifications of an RBAC model. A
role-based access without hierarchical control is
implemented where session termination is system-

enforced instead of user-elected, and all users have a single role (both of these are constraints under RBAC₂). Furthermore, the notion of sessions is limited in the HTTP environment because of the
5 single request-response nature of the protocol.

RBAC₀ includes:

- U , a set of users
- R , a set of roles
- P , a set of permissions
- 10 • PA , a many-to-many permission-to-role assignment relation
- UA , a many-to-many user-to-role assignment relation
- S , a function mapping a session to a set of roles,
15 possibly dynamically

This was the approach used to implement LDAP-based RBAC. The permissions are treated like uninterpreted symbols in the model definition.
20 The symbol interpretation service is implemented either as an application-level service-access

meditation function—which was the case with the insurance company implementation—or as an HTTP server-request intercepts filtering function—which was the case in subsequent implementations. (It 5 may also be possible to implement RBAC, (role hierarchies) using the object class hierarchy that is part of the X.500 schema employed by LDAP directory servers.)

FIG. 20 illustrates one embodiment of the 10 logical architecture for the security services. Other approaches are also possible. Authentication verifies a claimant's identity. The architecture in FIG. 20 shows authentication services as a configurable service element. In the fielded 15 implementation, an LDAP bind operation with a simple password provided the back-end authentication service with parameters obtained from the user in an HTTP form submitted over TLS. FIG. 20 shows several other common authentication 20 services that may already exist in an enterprise and could also be used. For a generic HTTP client, the authentication possibilities are limited to what can be accomplished with HTTP Basic Authentication or form submission. Form 25 submission by the HTTP client causes the HTTP server to act as a proxy for the client in

executing one of the authentication protocols.

This implies that the client trusts the HTTP server in this proxy authentication role.

Session management services are shown in
5 FIG. 20, and detailed below.

Time service. The session management services related to session duration and time-out require agreement on the time. Some authentication
10 protocols also use time-varying sources, such as challenge-response types. The required precision of time measurement is usually on the order of a few minutes for session idle time-out. The network time protocol (RFC 1305) and simple
15 network time protocol (RFC 2030) provide close synchronization of system clocks.

User profile service. This service provides user attributes, particularly security roles and distinguished names. Other information that may
20 be useful in the applications or content-tailoring environment may be provided, such as given name, common name, application preferences, and so on.

Ticket issuance service. This service grants a session ticket to an authenticated user. The

session ticket stores information about the Web site user in a tamper- and spoof-proof format and utilizes session tune-out in the normally stateless HTTP environment (for session ticket specifications, see Bellovin²).
5

The session ticket based on HTTP cookies is the only standards-based, scalable method for maintaining state in the HTTP environment. The
10 ticket can be represented either as a single cookie within which a number of values have been catenated or as a collection of distinct cookies. In our fielded implementation, a set of related session tickets was used. For implementation purposes, this collection is referred to as the
15 session ticket (in other words, it is a set of related cookies).

The session ticket comprises a payload,
20 consisting of several distinct variables and their values:

- User_IP: the client IP address to which the session ticket was issued. This is used in session ticket validation to detect source

spoofing . Note that firewalls should not be configured to hide or rental) the requestor address for this to he of use.

- User_ID: the username or distinguished name (DN) that was correctly authenticated to the site.
- Login_Expires: the session time-out and automatic logout function that Web browsers do not inherently support.
- Login_Expires_Absolute: the stated absolute expiration time of a session, even if it has not expired due to idleness time-out.
- Other attributes as required for the particular implementation.
- Ticket_MAC: a digital signature or message authentication code (MAC) computed against the catenation of the session ticket values.

The server issues the session ticket after a successful authentication protocol execution, which in most cases transpires over an encrypted SSL connection between the Web client and the Web server. Once the ticket arrives at the Web

browser, it must be secured from tampering, as shown in FIG. 21. A digital signature or Message Authentication Code (MAC) across the session ticket makes tampering detectable. If, for 5 example, a user attempts to maliciously modify his role, the message represented by the session ticket will not be authentic.

The insurance company implementation used a hash-based MAC referred to as HMAC-SHA-1-160, as all 160 bits of the SHA-1 output are retained. Alternative implementations of the secured session ticket are possible using symmetric cookie encryption or public key methods for digital 10 signature. This session ticket expiration time is determined by the earlier of the Login_Expires or Login_Expires_Absolute values in the secure 15 session ticket. These values are determined at the time the session ticket is generated by adding the system configuration parameters of Session_Duration and Session_Duration_Absolute to 20 the current time, obtained from the time service.

A valid session ticket is refreshed as it is used: this involves the update of the Login_Expires and Ticket_MAC values. The values are validated by a server and returned to the user in response to an HTTP request, which prevents ticket expiration while a user is active. Users would otherwise need to re-authenticate unnecessarily. FIG. 22 illustrates the logic for implementing the ticket-issuance service and its interaction with the authentication and user profile services.

Ticket validation service. After a ticket is issued, the HTTP server must validate it as presented in the request headers. Three checks are performed to validate a session ticket transmitted from a browser user to a server:

- The IP host address from which the session ticket was transmitted must match the User_IP value.
- The Ticket_MAC value (as a cookie header) in the request from the browser user must match the result of the same server-side calculation performed on the presented session ticket using the MAC key (excluding the Ticket_MAC value).

- The time provided by the time service must be earlier than the times specified in the ticket's Login_Expires and Login_Expires_Absolute values.

5 If a session ticket is not valid, the user
is asked to reauthenticate and thereby establish a
valid session. When a user successfully
authenticates, the session ticket transitions
state to "Valid and Not Expired." From this
10 state, a number of possible transitions can be
made:

- A ticket refresh may retain the "Valid and Not Expired" state. This is most common event.
- If the ticket is deleted (for example, the
15 representative cookie tile is deleted, or the
browser application execution terminated and
restarted), it arrives in a "No Ticket" state.
- If the ticket is tampered with or the machine IP
address does not match the User_IP value, it
20 arrives in an "Invalid Ticket_MAC" state.
- If the ticket is presented after it has expired,
it arrives in an "Expired" state.

- A tampered and expired ticket arrives in the "Invalid and Expired" state.

From any invalid state, a transition back
5 to the same state based on a failed
reauthentication is possible. If reauthentication
is successful, the state transitions back to
"Valid and Not Expired."

10 The User_IP may have been established by a
dynamic host configuration protocol (DHCP) service
(RFC 2131); this occurs if sessions time out or
expire in a much shorter time than a DHCP address
lease does. Session time-outs are usually in the
15 range of 5 to 20 minutes, while DHCP leases tend
to have durations of 24 to 72 hours (a few
environments with very short leases provide
exceptions to this). If a DHCP lease is lost and
renewed with a different IP address while a
20 session is active, then the user will need to re-
authenticate. (In other words, the user will have
been logged off by the address change; this would
be true for any socket-based services in use as
well).

The use of proxy servers raises another issue related to User_IP. In the case of many users and a single shared proxy, all users appear
5 to have the same IP address—that of the proxy.
This limits the effectiveness of User_IP in binding a session ticket to a particular host. In the case of many users and an array of proxy servers with different IP addresses, the User_IP generally will not match the actual IP address of
10 the rotating proxies. In a case where you can control the proxy systems, one solution is to activate proxy generation of the Client IP HTTP request header and use this value instead of the
15 host IP address.

The keyed message authentication code stored as the Ticket_MAC value requires the provision of some key management services. Key
20 management services required for this approach are:

- secure distribution of the MAC key to all servers requiring it, and

- MAC key renewal or regeneration.

MAC key updates cause all currently valid
5 session tickets to become invalid. This forces
users to reauthenticate, which can be irksome if
key updates are frequent. In practice, a nightly
key update schedule is often adequate for typical
business-oriented-as opposed to military or
10 diplomatic-security policies. In a network of
servers requiring MAC key knowledge and renewal,
more elaborate key distribution methods are needed
to protect the key during transmission.

15 The Authorization Service mediates user
access to resources; its primary clients are HTTP
servers and other network-based, LDAP-aware
applications. When a user requests resources, the
HTTP server asks the authorization service if the
20 user is authorized for them. The response is
either true or false, and the HITP server or
application processes the request accordingly. In
this way, the HTTP server acts like an application

access firewall, where filtering rules are based on an RBAC model accessed over LDAP.

LDAP is defined in several IETF documents. 5 RFC 1487 (July 1993) was the earliest definition of a lightweight access protocol for X.500 directories. RFC 1777, released in March 1995, is known as LDAPv2 and remains the current draft standard. RFCs 2251 through 2256 are proposed 10 standards and collectively constitute what is known as LDAPv3.

The LDAP RFCs describe a network protocol for communication between directory user agents (DUAs) 15 and directory server agents (DSAs), supported by an underlying set of data structures referred to as a directory. The directory data structures are in accordance with the CCITT X.500 standards⁵ and provide a simple, object-oriented organization. 20 The objects are not complex and do not have any executable code attached to them; they often look like simple database rows with the exception that attributes or columns may be designated as required or allowed. Objects may be designated

distinct classes, the attributes of which may be inherited by any object therein.

Using a compliant LDAP DSA and domains
5 example. (a Netscape Directory Server in the implementation described here), the RBAC₀ model defined previously can be implemented by making two schema extensions. First, the default user object is subclassed to a new object class with at least one additional required attribute:
10 securityRole. At this point, if the client has outer attribution requirements, those attributes are also definers for the new default user object.

15 Second, the object class securityRoleObject is defined. There is one instance of securityRoleObject for each defined role in the system. This collection of objects defines the relation PA, as described for RBAC₀ (a many-to-many permission-to-role assignment relation). In practice, PA may be represented as a Boolean matrix of dimensions corresponding to the number of roles (rows) and permissions (columns) in the
20

system. Each securityRoleObject then corresponds to a row of the permission matrix.

Next, users are created in the LDAP directory
5 using the new object class. This object class
inherits all the usual attributes-e-mail address,
fax number, street address, first name, last name,
and so on-plus any additional new attributes the
client requires. A typical distinguished name
10 (DN) for a user would have the form uid=userid,
o=organization, c=countryName.

After all of the information access functions
are identified, user roles are defined. An
15 instance of the object class securityRoleObject
with an identifier that included the role name and
true or false values for each attribute that
matched an information-access function was created
in the insurance company implementation.

20

Because HTTP cookies contain a return
domain that may include a wild-card type of
specification, it is possible to use this session

ticket scheme for a single Web sign-on (SWSO) capability. SWSO allows a user to authenticate once to the ticket-issuing service and obtain a session ticket that establishes the user's session and authentication throughout an entire DNS subdomain of hosts. An HTTP cookie contains a name, a value, a path, a domain, an expiration, and a *secure-only* attribute. By designating the domain to be, for example, *.computer.org, the cookie will be returned to any server in the subdomain of computer.org, such as www.computer.org, dlib.computer.org, ftp.computer.org, and so on. A single session ticker thereby provides the user's authentication and session management across a number of hosts related by domain name.

The example outlined below describes how a user sees the interaction with Web-based systems employing this approach to security. The initial login form includes possibilities for authentication service selection and domains for SWSO; in practice, this login form would be simpler.

The following steps describe this hypothetical session, illustrating the user's view of the system's security aspects:

- The user launches a Web browser and enters a URL,
5 such as `http://dlib.computer.org`.
- Any cookies representing session tickets from previous sessions have expired, so no cookies are presented in the request headers. (Expired cookies may be present in the request, but the
10 user does not see this.)
- The Web server examines the request headers looking; for a name-value pair. which serves as the session ticket. If the session ticket is invalid or expired. or if none is found. the user
15 is redirected to an authentication HTML form, delivered over a secured SSL HTTP connection from the ticket-issuing server. This form may be delivered by the same Web server or by a different Web server dedicated to this purpose.
- 20 • The user fills in the authentication form, entering a user-ID and password, domain selections, and authentication method selection. and submits the form to the ticket-issuing server.

The ticketing server operates as a proxy for execution of file selected authentication protocol with an authentication server.

- The ticketing server prepares a ticket for the user's session. The user ID, DN, session expiration time, absolute expiration, and possibly a client IP address form the ticket payload. A keyed MAC value is computed against the payload and appended to it; the payload and its MAC are then delivered in the HTTP response headers as cookies. The return domain of the cookies corresponds to the domain selections made earlier on the form (*.computer.org in this case). The user is now authenticated and has an active Welt session with all Weft servers in the *.computer.org domain.
- The user is presented with the initial navigation screen of the Computer Society's Digital Library.
- Subsequent requests against any server in the *.dlib.computer.org domain will have the session ticket cookie values in the HTTP request headers. All Web servers will extract that header and validate it using the shared MAC key. The user

does not need to re-authenticate until the session expires.

- The session expires after some time, say 30 minutes. A valid MAC but expired ticket results in a re-authentication as described above. Now re-authenticated, the user continues using the Digital Library.
- Finally, the user is done with the session, and instead of telling it time out, she logs out explicitly. The logout establishes a session ticket with the expiration time so that any re-use of the computer's currently running browser will require re-authentication.

15 A comprehensive approach to security must consider numerous potential attacks on network services. Relevant issues include security policy, information labeling, user administration, physical security, operation system confirmation
20 and hardening, network topologies for service locations, firewall configuration and filtering rules, intrusion detection, penetration testing, and more. The following analysis of threats is restricted to those specific to the security

services identified in tile service architecture presented here.

Both SHA and MD5 produce a fixed number of
5 hits from an arbitrary size input: SHA produces
160 bits and MD5 produces 128 hits. The MAC can
be defeated only by a forgery. To succeed, an
attacker must find a useful hash collision-a
computationally daunting task. To guard against
10 this attack, the MAC key is regenerated daily,
thus limiting the time available for calculating a
useful hash collision to 24 hours. This interval
may be reduced as computer power available to
attackers increases.

15

The primary defenses against session
ticket theft attacks are the Login_Expires and
User_IP elements. An attacker has only until the
Login_Expires time to steal the session ticket and
move it to another machine: in practice, this
20 window of opportunity is usually between 5 and 20
minutes. (If the attacker were in possession of
the victim's password, this session ticket theft
attack would be unnecessary.)

The attacker's machine must also engage in an IP address spoof so that it appears to have the same network IP address as the victim's machine.

5 Since both machines are active at the same time, this routing issue poses an additional problem for the attacker. A successful session ticket theft requires that an attacker read a user's disk-based cookie file, change the victim's IP address or
10 take the victim's machine off the network, assume the victim's IP address on a subnet such that the IP routing of the stolen address will operate correctly, and finally, access the Web-based resources while impersonating the victim. This is
15 a relatively complicated attack, which would generally require physical proximity to the victim's network and execution within a short timespan.

20 This attack is very unlikely to succeed when the cookies are *memory-resident*, that is, if they are never written to the cookie file by the browser software. This memory-only cookie treatment by browsers is not guaranteed, however.
25 If SSL is used only access to the ticket-issuance

service and the session tickets are subsequently transmitted in cleartext over the network, the tickets are vulnerable to recovery by an eavesdropper. When the HTTP traffic is SSL-
5 encrypted, successful eavesdropping to steal a session ticket is unlikely.

If an attacker tries a different approach, such as extending the Login_Expires attribute or
10 changing the User_IP of the session ticket, this will be detected in a Ticket_MAC computation mismatch. (The attacker does not have access to the MAC key secret used in the signature-generation algorithm, as it is protected by a
15 firewall and operating system security measures.) A Ticket_MAC mismatch causes the server to immediately request re-authentication with the correct user ID and password, and generates an auditable event. Similarly, if an authenticated
20 user seeks to modify some signed attribute, this will also be detected by a Ticket_MAC mismatch.

The function that generates the session ticket is another point of attack. Direct

execution of this function would allow all attacker to revive an expired session on a machine that an authenticated user has left unattended. This function is protected by operating system 5 methods, application server methods, and Web server access controls. No unauthenticated or direct execution or viewing of the session ticket generator is permitted.

10 LDAP-based authentication and authorization services are also vulnerable to attack. This could involve repeated attempts to guess a user-ID and password for an LDAP bind with simple password operation. Discovery of a user's 15 password would allow an attacker to impersonate an authorized user. An attacker might also discover a system administration account, and thereby be able to change security role definitions. Further, a user may seek to modify his security 20 role attribute to gain greater access to resources.

Additional details regarding the above may be found in Kurt Gutzmann, Access Control and

5

Session Management in the HTTP Environment, IEEE Internet Computer (January-February 2001), incorporated herein by reference and all references cited there incorporated herein by reference.

10

FIG. 23 is a flowchart of a first embodiment of the invention that incorporates one or more of the architectures or communications methods described above. In FIG. 23, the process begins as all tickets are checked in, for example, as the patrons enter the reserved seating area, such as a stadium or theater, through, for example, bar code readers, scanners, infrared readers, and/or manually or other method where the patron is checked in, either at the gate, seat or other location. For example, patrons can optionally check in a predetermined time before the event through a wireless device, Internet connection, manual or voice recognition telephone, or other manner. The important point is to provide a standard manner for allowing patrons to check in, and if the patron fails to check in using a predetermined procedure, to allow that seat to be provided to another willing patron in accordance with a process to be

20

25

described below. The patron may check in either a predetermined time before or after the event begins. Currently, such a process is impossible and unthinkable in view of the difficulty reserved seating events have in simply getting the patrons seated prior to the beginning of the event. The present invention represents a revolutionary process to enhance event enjoyment, earn patron loyalty and optionally provide additional revenues to the theater/stadium or optionally other patrons with the desirable ticket.

The check in procedure continues for a predetermined period of time until a predetermined time period has expired, for example, 5 minutes before the event begins, 10 minutes after the event begins, after a predetermined event, such as the second act of a play, and the like. Once the predetermined time period or event has been completed, the check in procedure may be considered completed to begin the seat re-allocation process. To begin the seat re-allocation process, a re-allocation algorithm is used to re-assign seats for patrons that are willing or interested in different or

better seats. Such re-allocation processes or algorithms may include a random process, a process where priority patrons are given priority for re-assignment of seat, a process where 5 patrons are willing to pay additional for the re-assignment to either the theater or the individual patron whose seat is being provided to another patron, frequent event patrons, season ticket patrons, or other predetermined process.

10

If the patron that is identified by the re-allocation process is determined to be present in the theater, for example, via mobile telephone, wireless device, and/or manual verification, an 15 optional sub-process determines whether the patron's optional profile is also satisfied with the available seating. If the optional subscriber profile is not satisfied, then the re-allocation process searches for another possible patron. If 20 the optional profile sub-process is satisfied, then the eligible patron is notified via one or more means, such as announcement, manually, wireless device, mobile telephone, bulletin board, and/or other means. The patron is then notified 25 and presented with the option of moving for free,

use of award points, additional money to the theater and/or patron to whose seat is being provided, or other predetermined criteria to obtain the seat. Optionally, a bidding process
5 may be initiated that allows various patrons to bid against one another. Any standard bidding process may optionally be used. The patron, of course has the option to decline, and if so, the process continues and returns to the re-allocation
10 process to attempt to locate another possible patron.

If the patron accepts, payment of money or other means may be effectuated on the spot via the wireless device, credit card, debit card, points, and the like, and the patron may now move to the other seat. The patron's seat may then optionally be made available as an empty seat to the re-allocation process. If a predetermined period of
15 time has not expired, then the re-allocation process may be run again to optionally continuously re-allocate seats. The patron may optionally store the up-graded ticket on a wireless device for proof of entrance to the
20 better seating area. Optionally, the seat and/or
25

row and/or section, includes a separate reader device to receive optionally the original ticket that is now re-allocated to a better seat, or a new ticket that may optionally be received by the 5 patron via the wireless device and/or manually via a worker in the theater or stadium. The worker in the stadium may input the confirmation number received from the patron to determine the appropriate upgrade. In this embodiment, only 10 confirmation numbers that are provided to the workers are input into the system, thereby reducing the amount of transactions in the system, as opposed to pushing, for example, an upgrade list to all workers in the stadium in accordance 15 with another embodiment of the invention.

In accordance with the invention, as indicated above, when the patron registers for ticket re-allocation and/or purchase, via for 20 example the Internet, the patron may enter payment information at that time. Accordingly, when the patron accepts the ticket re-allocation and/or purchase, the system can automatically charge the patron without the patron actually 25 submitting/typing, for example, credit card

information over a wireless device. The tickets of
the present invention may be used to re-allocate
patrons that are sitting in the stadium and/or
patrons that may be in the vicinity of the stadium
5 but were unable to get seats. Since the present
invention re-allocates and/or sells tickets very
near to game time in accordance with one
embodiment, the patron must be in the general
vicinity of the stadium to take advantage of this
10 embodiment of the invention.

As described above, the patron may be
transmitted, for example, emailed, the actual
ticket or a confirmation number that they can use
15 proceed to their seat and/or re-allocated seat. An
optional graphical display via, for example, GPS,
as discussed above may be used to guide the patron
to the new location upon acceptance, as well as to
help the patron decide whether to purchase the
20 ticket and/or upgrade. For example, a graphical
map of the stadium and/or textual description may
be provided to the patron to help the patron
decide the quality of the upgrade and whether to
accept.

In one alternative embodiment, if the patron that has their ticket re-allocated in error, e.g., because the patron did not show up to the event based on the predetermined criteria but the patron was still planning on attending because they forgot about their seat being re-allocated, the system can re-allocate seats immediately upon the checking in of the patron and notify them that their seats have changed because they are late. In this situation, the stadium/venue might decide to further upgrade the patrons because of the mistake.

In accordance with one embodiment of the present invention, the process of the present invention specifically reserves seats of the highest or very high rating that are considered preferred, in the event a patron's seat is re-allocated prematurely or erroneously. In this situation, the patron who has had their seat re-allocated because they will likely receive an even better seat as a result of the mistaken (stadium or patron) or premature seat re-allocation.

In another embodiment of the present invention, as patrons are entering the venue or stadium, they are provided advantageously with a map of the stadium so patrons can analyze the potential upgrade to make a decision whether the upgraded seats are sufficiently good or of value to warrant the patron moving and/or paying for the additional upgrade. By handing the patron the map of the stadium, the process of the the present invention is not required to transmit a detailed schematic to the patron's wireless device which would not normally be able to effectively permit the patron to evaluate the proposed upgrade seats. The map that is handed out may optionally include information for patrons on where to register for the upgrade and/or additional advertisement opportunities.

In one alternative embodiment, the patron that has purchased the ticket, for example, a season ticket holder, may advise the stadium that for a particular game, set of games or all games, they do not want their seats to be re-allocated, and perhaps, an additional fee is assessed for this type of patron. If the stadium provides the

ability for the patron to selectively opt out of
the seat re-allocation, the patron can, for
example, connect to the system via the Internet,
public switched telephone network, cellular
5 network, and the like, and notify the system that
they do not want their ticket re-allocated, for
example, because they are coming late to the
event. Other means of notifying the system and/or
other reasons may be utilized in connection with
10 the present invention.

In another alternative embodiment, the
system provides patrons the ability to
individually select when their tickets may be re-
15 allocated. For example, one patron may prefer to
only give up their ticket if they are late to the
game by 15 minutes, while another patron may be
willing to give up their ticket if they have not
arrived 15 minutes before the game. In alternative
20 embodiments, the stadium may provide incentives
for the patron to have their ticket re-allocated
prior to the game because it increases the
stadiums chances of re-allocating/re-selling the
ticket.

The present invention has particular benefits for stadiums that are constantly sold out, but where patrons habitually do not show up. For example, many stadiums are sold out by season ticket holders that do not show up to the game on a regular basis. The present invention permits these tickets to be re-allocated in accordance with, for example, predetermined algorithms, and provide additional patrons a better experience. In addition, the present invention has the benefit of moving the patrons closer to the action/players, and therefore, the ability to support and/or motivate the players to play well. In additional alternative embodiments, the stadium may provide the original ticket holder a portion of the proceeds as a result of the ticket re-allocation, thereby providing additional incentive to the ticket holder to permit their ticket to be re-allocated (when this is a voluntary program in the stadium). The stadium may then keep a percentage, portion or service fee from the resale and/or re-allocation of the ticket. Of course, the above embodiment may further apply to yet another embodiment where the stadium does not offer the upgrade to patrons sitting in the stadium, but to patrons that, for example, may be in the

geographic vicinity of the game but that may not currently have any tickets or that may be willing to purchase the tickets when availability is determined and to travel to the event.

5

In an alternative embodiment, the system determines priority of re-allocation of seats based first upon patrons that have seats that may also be re-allocated. That is, the systems 10 attempts to maximize the number of re-allocations by prioritizing the re-allocation based upon seats that may be re-allocated after already being re-allocated. For example, if front row seats in a stadium are available to be re-allocated, in this 15 alternative embodiment, patrons that are in the next closest section for example on the field level would be upgraded first to those seats. Then, patrons with less preferred seats, for example, in the upper deck would be re-allocated 20 to the seats that have now become available from the patrons that have been upgraded to the front row. Thus, using this alternative priority scheme, the present invention maximizes the re-allocation numbers. Of course, this priority algorithm may be 25 combined with additional factors, for example,

relating to subscriber/patron value. As described above, additional factors may be utilized in the algorithm to determine the subscriber or set of subscribers to offer the upgrade.

5

In alternative embodiments, patrons in the vicinity of the upgraded and re-allocated patrons may optionally rate the upgraded patron, for example, for appropriate behavior, wearing of excessively large hats, drunkenness behavior, and the like. These ratings may then be taken into account in the re-allocation algorithm for future upgrades to the patron.

15

In alternative embodiments, the patrons eligible for the upgrade may be notified using standard email communications over a wireless device, mobile telephone, and/or other standard communication means. For example, standard text-to-voice and/or voice-to-text communications may be used to contact the patron to evaluate whether an upgrade will be accepted and to actually accept the upgrade.

20

In another embodiment of the invention, as indicated above, when the patron registers for ticket re-allocation and/or purchase, via for example the Internet, the patron may enter payment information at that time. Accordingly, when the patron accepts the ticket re-allocation and/or purchase, the system can automatically charge the patron without the patron actually submitting/typing, for example, credit card information over a wireless device. The tickets of the present invention may be used to re-allocate patrons that are sitting in the stadium and/or patrons that have already purchased tickets in the vicinity of the stadium but were unable to get seats and/or may be in the vicinity of the stadium but were unable to get seats. Since the present invention re-allocates and/or sells tickets at any time prior to and/or after beginning of game time in accordance with one embodiment, the patron may be in the general vicinity of the stadium to take advantage of this embodiment of the invention or even at any location when being offered upgrades and/or seats well in advance of the game. For example, the present invention can upgrade or sell tickets to patrons well in advance of the game since it advantageously is permitted or has the

authority to resell tickets either via ticket holders that do not show up during the game and/or, for example, season ticket holders that have authorized the stadium in advance to resell their tickets based on predetermined criteria, for example, when the season ticket holder notifies the stadium that they will not be present at next weeks game.

10 In one optional embodiment of the invention, the patron presents the usher with the confirmation number which the usher can enter into a wireless device using a local or private wireless network, or can simply use a walkie
15 talkie or telephone to call the dispatcher to confirm the upgrade and/or new seats using the customer provided confirmation number. The dispatcher will have access to the system to enter the confirmation number to confirm the validity of
20 the upgrade. Alternatively, a patron will retain their old ticket. The patron will give in the old ticket to the usher which is scanned or barcoded by the usher for immediate identification of new seats and used in place of, or in addition to,
25 confirmation number.

Of course, the confirmation may optionally be made via customer name with an appropriate identification card or other information.

5 Further, alternative methods may be used to verify that the confirmation number and/or ticket being used by the patron is valid. For example, the patron may be equipped with a printing device associated with the wireless device or download an actual ticket on line from home prior to the game for the new ticket or upgrade. Alternatively, the patron may be equipped with an identifier card, optionally including a bar code with a unique identifier relating to the patron's account 10 information and profile that can be scanned for additional convenience. Alternatively, a wireless device may be used to securely store this type of 15 identification and/or account information.

20 In at least one alternative embodiment of the invention, the patron may comprise optionally a corporate account that has a number of tickets, for example, season tickets. In this embodiment, the corporate account may have associated 25 therewith a plurality of email addresses or other

communication addresses to transmit the seat or upgrade offer to a number of potential patrons that may rotate their attendance at the games. In accordance with this optional embodiment, multiple
5 emails can be stored for a single user/corporate account, and the system may transmit individual messages to all email addresses, or may only transmit messages to individual patrons for corporate account that individually advise the
10 system that they are associated with a particular ticket/bar code for a particular game and will be/are present at a particular game.

In an alternative embodiment, patrons may enter the stadium and subsequently inform the
15 system that they are present and interested in an upgrade via a kiosk where the patron can scan a bar code and enter their customer number to be eligible for upgrades during the game. The system is then able to transmit a message to the
20 customer, assuming that the customer has pre-registered with the system with the appropriate contact information. Alternatively, or in addition to individual use of a kiosk(s), the customer sales office may have a kiosk or additional
25 functionality to enter the customer name and/or customer account and scan in the bar coded ticket

on the spot to register each patron as they enter the stadium or venue.

As described above, the patron may be
5 transmitted, for example, emailed, the actual ticket or a confirmation number that they can use proceed to their seat and/or re-allocated seat. An optional graphical display via, for example, GPS, as discussed above may be used to guide the patron to the new location upon acceptance, as well as to help the patron decide whether to purchase the ticket and/or upgrade. For example, a graphical map of the stadium and/or textual description may be provided to the patron upon entry in the
10 stadium to help the patron decide the quality of the upgrade and whether to accept when an offer is received by the patron at a predetermined time.
15 The graphical map may comprise a small booklet with a map of the stadium showing seat locations, and optionally a game schedule.
20

The present invention has particular benefits for stadiums that are constantly sold out, but where patrons habitually do not show up.

For example, many stadiums are sold out by season ticket holders that do not show up to the game on a regular basis. The present invention permits these tickets to be re-allocated in accordance
5 with, for example, predetermined algorithms, and provides additional patrons a better experience. In addition, the present invention has the benefit of moving the patrons closer to the action/players, and therefore, the ability to support and/or motivate the players to play well.
10 In additional alternative embodiments, the stadium may provide the original ticket holder a portion of the proceeds as a result of the ticket re-allocation, thereby providing additional incentive
15 to the ticket holder to permit their ticket to be re-allocated (when this is a voluntary program in the stadium). The stadium may then keep a percentage, portion or service fee from the resale and/or re-allocation of the ticket. Of course, the
20 above embodiment may further apply to yet another embodiment where the stadium does not offer the upgrade to patrons sitting in the stadium, but to patrons that, for example, may be in the geographic vicinity of the game but that may not currently have any tickets or that may be willing
25

to purchase the tickets when availability is determined and to travel to the event.

In alternative embodiments, patrons in the
5 vicinity of the upgraded and re-allocated patrons
may optionally be eligible for a dating or
matching service where patrons register and
provide profile information to the system and/or
through a third service provider dating service.
10 Once the system knows that the patrons will be
coming to the game and/or have actually checked in
to the stadium, the system can then arrange for
the two, four, etc. patrons to meet each other by
allocating and/or re-allocating seats to the
15 patrons together. Thus, based on profile
information, customer request and availability,
the system is able to upgrade or sell tickets to
patrons to maximize their chances of meeting
someone at the game. This optional feature
20 provides significant potential enjoyment for the
patrons participating in this dating or connection
program. In accordance with this embodiment, one
possible sequence of acceptance steps involves
profile matching the two patrons (or groups of
25 patrons) based on predetermined profile

information; transmitting a first message to the first patron regarding availability of the second patron and requesting a conditional acceptance from the first patron; transmitting a second message to the second patron indicating that the first patron has conditionally accepted and request the second patron to accept; and when the second patron accepts before the first patron has rescinded the conditional acceptance, finalizing the upgrade and/or seat allocation for the first and second patrons. This embodiment of the invention is a complete reverse from typical dating and/or matchmaking services which attempt to develop detailed algorithms for the matching process because of the significant decision that exists in determining who to spend valuable time with. In accordance with the invention, patrons are already present at the game, and therefore, half or more than half the effort is already done.

The remainder is to actually meet the other person which can be accomplished with profile criteria, whether or not the algorithms are very sophisticated.

In one embodiment, the patrons that are being matched have their original seats maintained and not made available for other upgrades in the event the matching does not work out early on. In 5 this embodiment, one or both the patrons can return to their original seat. Hopefully, there will not be a significant argument of who would need to return to their original seat if an upgrade is actually performed. In addition, in 10 accordance with this embodiment, the seats that are selected do not necessarily have to be better seats in the classical sense. That is, seats further away from other ticket holders might be considered preferred when matching two individuals 15 for the first time. Alternatively, couple that would prefer a little more privacy or quieter game might request to be moved to a more isolated area. Alternatively, families with small children might prefer to be moved to a less busy area as well 20 during the game where the children might be able to freely move around. All these scenarios and/or alternatives are possible in view of the present invention. The advantage of performing a match in a public setting is that the patrons do not have 25 to worry about leaving or ending the date, and

also do not have to worry that the other person will have their home address.

In an alternative embodiment of the
5 dating/matching service of the present invention, a dating/matching service is provided to patrons that enter a predetermined location and/or geographic area. The patron can enter physically the location and/or geographic and register, for example, by manually entering data in a computer, transmitting information relating to the registration of the patron via infrared, Bluetooth and/or other technology, and/or automatically register via use of GPS information associated
10 with or used in a wireless device associated with the patron. For example, patrons that enter an establishment can register upon entry that they are now present within the general location of the establishment. Upon registry, the system can
15 implement various matching algorithms currently in use by various matching services in connection with other patrons that have also registered at the same location and/or a location in the general area that the original patron registered.
20 According to this embodiment, the system
25

advantageously matches individuals that have registered in the same geographic location and/or geographic locations that are in the same general area where the patrons can walk and/or drive to meet each other in the same general time frame, such as the same evening, same afternoon same day, and the like.

5
10
15
20

In addition, this feature also optionally permits the patrons that have participated in the program to rate one another for future dates. For example, one patron can rate the conversational benefits of the second patron, the appearance of the second patron, the overall short term versus long terms relationship goals of the patron, and the like. These ratings may then be taken into account in the algorithm for future seat assignments, re-allocations and/or upgrades in the future for the first and second patrons, and all other patrons will now benefit with the additional profile information of the first and second patrons. The matching service may be for amusement or work related networking purposes, for example, to meet an executive that the patron currently

works with or wishes to work with/sell in the future.

In an alternative embodiment of the
5 dating/matching service of the present invention, a dating/matching service is provided to patrons that enter a predetermined location and/or geographic area. The patron can enter physically the location and/or geographic and register, for example, by manually entering data in a computer, transmitting information relating to the registration of the patron via infrared, Bluetooth and/or other technology, and/or automatically register via use of GPS information associated
10 with or used in a wireless device associated with the patron. For example, patrons that enter an establishment can register upon entry that they are now present within the general location of the establishment. Upon registry, the system can
15 implement various matching algorithms currently in use by various matching services in connection with other patrons that have also registered at the same location and/or a location in the general area that the original patron registered.
20 According to this embodiment, the system
25

advantageously matches individuals that have registered in the same geographic location and/or geographic locations that are in the same general area where the patrons can walk and/or drive to meet each other in the same general time frame, such as the same evening, same afternoon same day, and the like. In addition, the system advantageously and optionally provides the feature of allowing patrons to text message one another directly, and/or exchange pictures via wireless email, text messaging, and other wireless devices that provide the standard capability of exchanging pictures, such as T Mobile and/or Sprint.

15 In alternative embodiments, the ticket holder can call in via a voice to text message, text message and/or email and let the stadium know early that they are not coming. In this manner the ticket holder obtains the convenience of the stadium or venue reselling their tickets in advance, thereby providing the venue with additional time to maximize the resale of the ticket.

In alternative embodiments, when the patron enters the stadium, they have their ticket barcoded or other device that detects their presence can be used such as infrared, Bluetooth, etc., and then they can become eligible for an upgrade. The patron can register in advance that they want to receive upgrades by providing their name, message address, e.g., email, telephone text message address, etc., and optionally their credit card or other payment mechanism for upgrades that actually cost money as opposed to free upgrades.

In alternative embodiments, the patron can register at the ticket booth when purchasing their original ticket. In this scenario, the stadium representative can enter this information on behalf of, and with the permission of, the patron since the patron may already be providing their credit card, debit card, etc. to purchase the original tickets. Alternatively or in addition, a kiosk may be provided where the patron can enter their original ticket, e.g., scan in their original ticket and provide their name and text message information in the stadium to register for a one time upgrade for the game after purchasing, for example, a regular admission ticket.

In alternative embodiments, an usher can verify that the patron should be upgraded by the patron providing the confirmation number that may be transmitted in real-time by the system, and/or by the patron using their original confirmation number or original ticket with barcode or other identification means, such as a smart card, infrared reader, etc. that represents original ticket and presenting same to the user. The usher then needs only to scan in the original ticket and the system will verify whether the patron associated with the original ticket is valid and whether the upgrade is valid.

15 In alternative embodiments, a warning message may be sent to the ticket holder that has not shown up to game warning them that if they do not respond within a certain time period that their seat will be re-allocated or re-assigned to another patron. Similarly, a release message may be sent to the ticket holder after their seat has actually been released and/or re-allocated, thereby notifying the patron that if they change their mind in attending the game, they will have 20 to obtain an additional ticket. In alternative
25

embodiments, the ticket holder that has their seat released and re-allocated can be themselves re-allocated a similar, worse or better seat, depending on, for example, their subscriber value and/or other criteria. For example, if the patron is provided a better seat, this will encourage them to more readily give up their seats in the future even if they are attending the game. On the other hand, if the patron is provided a worse seat, then this encourages them not to artificially give up or have their seat released when attending the game. Accordingly, the present invention is designed to deal with various behavioral patterns of specific ticket holders, and may optionally and advantageously be a ticket holder specific with respect to various criteria for re-assigning, releasing, selling and/or re-allocating tickets.

In alternative embodiments, the system transmits to the ticket holder a welcome message after being upgraded and after having been moved to a new upgraded seat location. In one embodiment, the system identifies that the patron has been successfully upgraded after the patron

provides the usher with a confirmation number or original ticket, which is then verified by the usher and system.

- 5 In alternative embodiments, the system, after having identified which patrons have checked into the stadium and/or have been upgraded, transmits a trivia question and/or additional advertisements to all patrons attending the game.
- 10 In alternative embodiments, the information is transmitted to both patrons that are attending the game and additional patrons that have registered in the past to receive information but that are not attending the game. The participants can, for example, answer trivia questions and respond with their wireless device. Depending on whether the patron is attending the game or not, the system may determine to offer or deal with each of the patrons differently. For example, for patrons at the game, winners may be successively determined and narrowed, as patrons successfully and unsuccessfully answer questions, round after round of questions in a "spelling bee" format. For patrons that are not attending the game, winners may be declared, or statistics provided to the
- 15
- 20
- 25

broadcast station that can be aired on television. In yet additional alternative embodiments, instead of transmitting information/questions to the patrons via the wireless device, the
5 information/questions are displayed on the stadium billboard for patrons at the game and/or on television for patrons that are watching the game on television. The patron can then merely respond via the device, e.g., the telephone accordingly
10 via a voice-to-text system or via other mobile devices via text messaging.

In alternative embodiments, the present invention provides the advantage of
15 additional advertising sponsorship to the venue. For example, in one embodiment, the venue is partitioned into different locations that may be assigned to different sponsors. In one embodiment, the sponsor that provides the most value may be
20 assigned a certain number of premium seats that are not available to other sponsors.

For example, the sponsor may offer a discount on the upgrade if you are a Verizon or
25 Verizon Wireless customer or they credit your cell account for each seat upgrade or you get say 30

free minutes, etc. In alternative embodiments, the present invention provides the advantage of one wireless provider to advertise on another wireless providers mobile phone or wireless device. For example, if Verizon Wireless is a sponsor of the upgrade system for a particular stadium, the present invention will still work with, for example, AT&T, SPRINT, and CINGULAR customers. An advertisement message sent with the upgrade offer may read on the AT&T phone, "brought to you by Verizon Wireless." In an alternative embodiment of the present invention, text messaging is optionally used for mobile phones to perform the message communication of the present invention.

The user is only required, in one embodiment, to reply or respond with a "Yes" to accept the upgrade offer since the user has advantageously pre-registered with the system, thereby minimizing the required communication/input by the user. In an alternative embodiment, the user, instead of pre-registering with the system, is charged on their wireless or even regular telephone number bill when they accept the upgrade offer. Thus, the wireless system that either administers the user's regular or wireless account or the upgrade sponsor

may be responsible for actually billing the customer in this alternative embodiment.

In the alternative embodiment when
5 text messaging is optionally used alone or in combination with other communication methods, the system provides the additional advantage of maximizing bandwidth usage by not requiring use of bandwidth on the wireless voice system, thereby
10 maximizing system resources.

In another alternative embodiment,
the present invention optionally and advantageously provides a security and/or safety
15 feature in the event of, for example, a minor event where a parent gets separated from a child, a disaster or other event that might require evacuation of the stadium. In one embodiment, the person needing help provides their name to an
20 attendant that can search the system for the contact information of their companion/parent. The system can thereafter send an email and/or text message to the companion/parent regarding the status of that person and provide instructions for meeting that person or arranging help, authorizing
25 medical procedures, and the like. In another

embodiment, the person requiring help, e.g., a child provides the attendant or kiosk with their ticket which can, e.g., scan the bar code or other reader system. The system can either automatically provide a text message to the parent who can then reply to the child/attendant via the kiosk to meet the child.

10 Alternatively, the parent can be instructed to meet the child at a predetermined location, and to stop looking for the child because the child was found. Thus, for this example, the person who is lost or separated from their party can notify security or access a kiosk.

15 Security can, for example, notify the parent that child is in safe custody, and should not search the stadium, and therefore, meet outside stadium in a pre-specified safe place.

20 In an alternative embodiment, if a child/person is separated, the security guard/kiosk can arrange the best place to meet, either in or outside the stadium, together based

25 on an optional global positioning system (GPS). In addition, the party with the mobile device can be

provided directions on where to go to meet their party from who they have been separated.

In an alternative embodiment, the present invention may also be used in a security, defense and/or safety setting to direct patrons in a stadium for an orderly evacuation or notify patrons regarding status of a safety related event via, for example, a broadcast message including text message, email and the like. In this manner, system communication resources may be most efficiently utilized by not over-utilizing the system via voice communication, unless completely necessary. For example, the message can be broadcast in the event of an impending hurricane. In this situation, patrons in different sections get different messages, for example, to exit the stadium out of gates/exits that are either less occupied or closest to the section the patrons are sitting in. Advantageously, the present invention has the patrons contact information, including optionally and advantageously text messaging, that can be broadcast or sent to different patrons. The advantage of text messaging is that the bandwidth is more efficiently used in the event of an emergency, and there are no busy signals as in a

voice network. Further, the message is send, and if the network is at capacity, the system can automatically resend or the message will be placed in queue and sent as soon as capacity becomes available.

5

10

15

20

25

In another alternative embodiment of the invention, the security bracelets of the present invention can be required to be displayed and read on exit from a venue when a parent has reported that a child has been separated. In this event, all patrons are checked when they exit the stadium. The parent can report the specific seat that the child was sitting in, and then on exit, all patrons are checked. If the specific seat appears or if a child attempts to leave without scanning or presenting their bracelet, then that child can be taken into custody until their parent arrives, thereby possibly preventing abduction.

For instance, in sporting venues the bracelet ticket includes the machine readable information that comprises at least one of a bar code and radio frequency identifier used for security check in, and optionally check out. In this manner, the standard reading machines that

can scan the bar code or RFID information can keep track of people that have checked into the sporting event and/or venue. Advantageously, the machine readable information on the bracelet can

5 also be used by the venue in the event the patrons seat assignment is modified, for example, via an electronic ticket exchange or upgrade program. In this embodiment, the visible indicia are no longer valid for the actual seating that may be

10 dynamically changed and only represents optionally an initial seat assignment. However, the machine readable information may be used as a code to reference the specific patron and assign that patron a new seat. Thus, when the ticket reader

15 scans the ticket and actually identifies, for example, the bar code, this information can be used to reference the patron, update and/or confirm the patron's current seat via the reader used, for example, by ushers in the venue, kiosk, entrance to the venue, and the like.

20

In an alternative embodiment, the security bracelets of the present invention can be required to be displayed and read on exit from a venue when

25 a parent has reported that a child has been separated. In this event, all patrons are checked

when they exit the stadium. The parent can report the specific seat that the child was sitting in, and then on exit, all patrons are checked. If the specific seat appears or if a child attempts to
5 leave without scanning or presenting their bracelet, then that child can be taken into custody until their parent arrives, thereby possibly preventing abduction. This information, as previously mentioned, may be visually
10 cognizable for the patron and in combination, readable by electronic means if the bracelet includes a magnetic strip, bar code imprinting, or RF chip.

15 In an alternative embodiment of the present invention, the security bracelet and ticket combination of the present invention advantageously includes a bar code or other machine readable information such as a RFID
20 device. When, for example, a child is separated from their parent, the parent can notify security and the seat number associated with the child. If the child attempts to leave with their bar code/identifier, the system detects the bar code/identifier as either being valid and
25 identifying the child that is missing or being

invalid and raising another red flag. In an alternative embodiment, the bar codes/identifiers associated between children and adults correspond such that the child identifier must be within a predetermined time and/or number of checking out identifiers from/within the adult identifier. If this does not occur, the system determines that the child is leaving without their parent, and possibly being abducted.

10

In an alternative embodiment, the system links one or more tickets/identifiers together and requires the tickets/identifiers to exit the venue or event within a predetermined time period from one another and/or within a predetermined number of tickets/identifiers that have exited the venue and/or event. In the event that one ticket/identifier exits the venue or event and the associated identifier does not, then an alarm or other indicator occurs, and the attendants will detain the patrons that have initiated the alarm to for security purposes.

In an alternative embodiment, the tickets are advantageously coded with designations such as adult, child and the like. In the event a child ticket/identifier exits the stadium before the 5 associated adult and/or more than a predetermined time period and/or number of patrons exiting, the system can initiate an alarm so that an attendant can determine if a child has exited the venue or event without their parent or with a wrong parent 10 potentially averting a kidnapping. In this embodiment, an additional combination is the use of the standard fast pass feature, for example, at theme parks, and the like, where the venue records predetermined events that the user of the card 15 enters in a faster line. In this embodiment, if a child ticket/identifier is not associated with a parent ticket/identifier, for example, as described above, the child may be denied entry into the event or venue if not accompanied by 20 their parent. In alternative embodiments, the venue/event sponsor or organizer associates tickets upon request from the patron. In addition, in another alternative embodiment, a kiosk is provided inside and/or outside the venue for, for 25 example, parents to register their tickets and have them associated with their children's tickets

to prevent he child from exiting the venue without them, for example, as described above.

In an alternative embodiment of the present
5 invention, the system and method are adapted to utilize any type of wireless device with different interface and communication options. For example, different wireless devices have different constraints with respect to the interface, e.g.,
10 number of characters, how the subject and body of the messages are used/communicated, etc.
Accordingly, the present invention optionally provides a protocol conversion system depending on the type of wireless device and the wireless
15 device constraints, including message constraints and/or the wireless communication system. In alternative embodiments, the system determines the wireless device provider based on the address received from the wireless device, and is able to automatically determine the type of message and/or
20 message constraints and transmission constraints associated therewith based for example, on real-time information or on pre-determined stored information on the device and/or communication system. Accordingly, a protocol conversion system
25

for different wireless devices is provided by the present invention for sending and/or receiving messages, such as upgrade offers, responses, acceptances, and the like, from a variety of 5 different users/mobile devices and wireless systems.

In another alternative embodiment of the present invention, a security bracelet is advantageously utilized, for example, such as the 10 security bracelet disclosed in U.S. application number 10/680,207, filed on October 8, 2003, to Abraham I. Reifer, et al., and incorporated herein by reference, in the event of a reported event, security breach, abduction, and the like. In this 15 embodiment, all patrons exiting the stadium must show their ticket and/or identifier so that the venue can check all patrons out of the stadium. Thus, for example, if two kidnappers come in the stadium, and want to use one bracelet for a child, 20 the second kidnapper will be stranded in the stadium. In addition, if one kidnapper buys two tickets, then upon exit with the child and the additional ticket, a barcode/identifier will be exiting without ever having checked in, and then 25 the alarm will go off as well.

In another alternative embodiment, the present invention provides a broadcast message to warn patrons of an event, such as an advertisement, sale and/or even a weather related event such as a hurricane that might require the venue to be evacuated. Advantageously, in at least one embodiment, the broadcast message comprises standard text messaging that optimizes or better utilizes capacity from the communication system.

Thus, when using text messaging capabilities, the present invention efficiently transmits text messages to numerous subscribers regarding, for example, exit information, contacting and/or meeting additional parties that have been separated, and the like.

In an alternative embodiment of the present invention, the present invention optionally provides the capability to penetrate into secondary market with season ticket holders selling ahead of time the games they will not be attending. For example, the present invention optionally provides the feature for the season ticket holder and/or general ticket purchaser the ability to view in advance of the season and/or game the schedule, and to alert the venue and/or

stadium of games and/or events they will not be attending, thereby permitting the stadium/venue to attempt to resell the tickets to other patrons.

For example, in one embodiment of the invention,

5 the patron is provided with a monthly schedule listing the events that may be attended. The patron, such as a season ticket holder, may then click or place an indicator on all games they will not be attending for the season in advance,

10 thereby providing the stadium with the ability to resell tickets well in advance of the event. Once the patron completes identifying games that will not be attended, the system then compiles a list and transmits the list to the patron for an

15 optional confirmation. This list is then used by the system to release seats well in advance of the game. In an alternative embodiment of the invention, registered users of the system for, for example, upgrades, may also be notified of seat

20 availability for sales prior to the game/event. In an alternative of this embodiment, registered users may receive text messages, emails, and the like, notifying them advantageously of the availability of seats that heretofore have never

25 been easily available to the public for sale,

thereby allowing the venue to participate in secondary market ticket sales.

In one alternative embodiment of the
5 present invention, the system/process of the present invention provides or operates as a middle person/broker between the ticket holder that is returning tickets to the venue, such as the season ticket holder, and a ticket sales system and/or company, such as tickets.com, by notifying the
10 tickets company of the newly available seats via notification by the ticket holder, such as the season ticket holder of season ticket games not being attended.

15

In one alternative embodiment of the invention, the system and/or process transmits text messages, emails and the like, to offer tickets and/or seats and/or admittance to
20 subscribers for events and/or games with empty seats even before game. Thus, the present invention allows the venue to participate in the secondary ticket sales market and the upgrade market, thereby increasing revenue and fan
25 loyalty.

Of course, all of the embodiments of the present invention may be used for any reserved seating event, and/or venue that require tickets for entry thereof.

5

In another alternative embodiment of the present invention, the use of machine readable identifiers provides advantages for, for example, the upgrade program or ticket exchange of the present invention. For example, when the upgrade, re-allocation and/or electronic ticket is issued, the machine readable identifier, for example, the bar code, on the original ticket is invalidated, thereby preventing use of the invalidated ticket.

10 Accordingly, when a new ticket holder purchases the ticket form the season ticket holder, the new purchaser will be issued a new machine readable identifier, and optionally a new paper ticket. The present invention advantageously is able to handle

15 the issuance of a new ticket and invalidates the old ticket and optionally the old identifier that has, for example, been returned by the season ticket holder, thereby providing dynamic ticketing capability.

20

25

In an alternative embodiment of the present invention, the new patron obtains a new identifier such as a barcode, the old bar code of, for example, the season ticket holder is invalidated. In one embodiment of the invention, season ticket holders are offered to opt in the upgrade process. Various commercial incentives are possible for the season ticket holder to opt in the upgrade process, such as monetary compensation when their ticket is used for an upgrade and/or resold whether they express their intention not to go to the game prior to the game, and the like. Alternatively, season ticket holders may be offered that the cost of their season tickets will, for example, remain the same as the previous year or be reduced if they participate in the program. Therefore, the combination season ticket trade-in and upgrade program in one embodiment of the invention will be beneficial to season ticket holders by allowing them to trade when they already know that they have no intention of attending a game, and allow the season ticket holder to recoup some cost of the season tickets if they do not attend and their ticket is used as an upgrade. In addition, additional patrons of the event and/or sports team are permitted to attend

the game in locations/seats that they might never have been able to obtain access to. Further, the venue/stadium/team maximize revenues by being able to place tickets on the secondary market when the 5 ticket holder notifies the venue early enough that they are not attending the event, the venue also obtains additional revenue from upgrades when tickets are upgraded, and the venue obtains additional fan loyalty.

10

In another embodiment of the present invention, the system provides the ability to advertise via email, text messaging, and the like, for one wireless carrier on the wireless device 15 that is using another wireless carrier. Since the user of the wireless device has requested the service, the user appropriately receives the communication from the ticketing system of the present invention, and therefore, also 20 appropriately received the advertisement from the wireless carrier that is different than the wireless carrier that the user of the wireless may be using at that time.

25

In another alternative embodiment of the present invention, offers to purchase seats either

during the game or even well in advance of the game are "pushed" or transmitted out to registered users that have supplied their wireless and/or Internet addresses. For example, patrons can

5 register in advance for the upgrade and/or regular ticket offers to purchase admittance via various methods including the Internet. When seats band/or admittance becomes available, a broadcast message or other standard messages may be transmitted to

10 the registered patrons to notify them of the seat availability. Thus, seat offers are "pushed" to registered users that have requested this service advantageously to a wireless device and/or other address including standard telephone

15 communication, as well as additional optional advertisements. The system, in one alternative embodiment, provides the user the option when registering to accept certain types of advertisements to be received on their wireless

20 device via email and/or text messaging. In other embodiments, the user does not have the option of which advertisements to receive.

Advantageously, in accordance with one
25 alternative embodiment of the present invention, if a patron decides to attend an event such as a

sporting event when the patron does not have time to wait to receive paper tickets (e.g., the patron is visiting in another city/location and does not have time to wait to receive tickets via mail and
5 is on the go), the system of the present invention transmits a ticket to the patron via, for example, a wireless communication system and/or other standard electronic communication system such as the Internet, and the patron can present their
10 ticket, for example, on their wireless device and show up to game.

In another embodiment of the present invention, an interactive patron entertainment system is provided where trivia questions, for example multiple choice questions on a variety of topics, are sent to the patron via email and/or text messaging and/or displayed on the scoreboard with an address to respond, such as
15 trivia@utixx.com. Patrons then text message and/or email and/or answer questions via voice-to-text messaging their answers. The system can then display the overall number of answers that are correct and incorrect, display bar graphs and the like to the event patrons by displaying on a
20 display, such as the scoreboard of a sporting
25

event. The system then identifies the patrons that have correctly answered the question and can then send new questions to be answered just to the previously correct patrons, thereby further

5 narrowing the group of patrons. Successive questions can be sent, including questions that are not multiple choice and that require actual text to be entered via standard wireless device interfaces, and patrons are successively

10 eliminated until a single or sub-set of patrons are determined to be the winners. Advantageously, the present invention provides entertainment to the patrons at the event by optionally providing successive questions throughout an event. In

15 another alternative embodiment, simultaneously with the questions to the patrons present at the event, the present invention is also capable of sending the questions to patrons that have registered with the system, but are not at the

20 event, for example, at home watching on the television or simply not currently involved in the game. The present invention is able to transmit the same and/or different questions to those registered users as well. Further, in another

25 alternative embodiment of the present invention, viewers watching the television, for example the

same event that patrons are attending, may be
presented with the same and/or different questions
as well as an address and/or telephone number to
call and provide their answer which they can
5 compete with patrons at the event or can be used
to provide a separate comparison of the answers
and/or separate winners to the contest. In this
embodiment, for example, questions may be
displayed on the television, Internet website, and
10 the like, during the event, and viewers watching
the television may respond to the questions as
described above. The system can optionally compare
the percentage of correct answers between the
television viewers and the patrons at the event,
15 and/or provide separate awards or a single award
to the winners from the pool of
television/Internet viewers and/or patrons in the
event.

20 In another alternative embodiment of the
present invention, the system uses a seat database
to determine which of the reserved seats are
currently in use. The system may integrate with
the seat database system of a venue and/or stadium
25 or optionally be used in parallel with the seat
venue/stadium database. For example, prior to the

event, the system may utilize the seat database of the venue to determine available seating and patrons that do not show up after a predetermined period of time. Alternatively, the present
5 invention can operate using a separate database from the event/venue by copying or building a separate database used for the ticketing and/or upgrading according to the present invention. In this alternative, as patrons enter the venue, they
10 are checked in directly to this separate database. At the time of the event, the system will be able to check-in patrons using either the identification system, e.g., bar code scanner, of the event or venue, or provide a separate
15 identification system.

In alternative embodiments of the invention, the patron that knows they are attending the game but is going to be late can send in a HOLD message even prior to being provided a warning message that their seats are to be released if the patron does not respond to the message with the HOLD request. That is, in this embodiment, since the patron already knows well in advance that they are attending the game, but
20 perhaps stuck in traffic, the patron can initiate
25

the HOLD message before even being warned in advance of the possibility of their seat being released.

5 In another alternative embodiment, patrons that have registered with the system and optionally checked into the stadium and/or venue in advance and who also know that they would like an upgrade and/or ticket, may initiate their own
10 upgrade request to the system to notify the system of their willingness to purchase an upgrade and/or new ticket for the event/venue. The system may then place these patrons on a higher priority since they have already expressed and intent
15 and/or willingness to purchase the upgrade or ticket. The patron may notify the event and/or stadium of their willingness optionally well in advance of the game or near/after game time at a time which the patron commits or expresses an
20 additional heightened desire to upgrade and/or purchase a ticket.

25 In alternative embodiments, the system includes the advantage of allowing patrons to register free for a predetermined period of time, for example, for the first year, without paying a

yearly subscriber fee. Alternatively and/or in addition thereto, the system provides the patron with their first upgrade for free or for a reduced rate to further encourage the patron to register
5 with the system and method of the present invention. Alternatively and/or in addition thereto, the system of the present invention offers the patron reduced and/or free concessions when purchasing a membership, ticket and/or
10 upgrade to further encourage the patron to participate in the offers of the present invention.

In alternative embodiments of the present
15 invention, the matching system and/or process, permits participants in the program to initiate a message to the system with the seat location and/or name of the patron that they would like to be matched with for a meeting, networking and/or
20 socializing such as a date. In this embodiment, the system may push the message to the other subscriber and assign new seats to the individuals that are to be matched. Alternatively, the system
25 Need not require a specific confirmation that the second individual to be notified of the potential match is physically located near the first

individual, but can rely on the first individual to provide that information. For example, the first individual may see a potential date in a restaurant, and may then send a message to the system with that person's name or address, that they would like to meet that other individual. In that situation, the second individual will receive a message of the possible match, and can respond and accept or reject the offer to meet. The second individual can then provide a meeting destination or the system can suggest a meeting place based on the first individual advising the system of their location, and the location of the second individual.

15

20

25

In another embodiment of the present invention, an interactive patron entertainment system is provided where trivia questions, for example multiple choice questions on a variety of topics, are sent to the patron via email and/or text messaging and/or displayed on the scoreboard with an address to respond, such as trivia@utixx.com. Advantageously, the multiple choice questions each have unique selections, such as a1, b1, c1 and d1 for question #1; a2, b2, c2, and d2 for question #2; a3, b3, c3 and d3 for

question #3, and the like. In this embodiment, the actual timing of questions is not necessary since each question and answer is unique. Therefore, the speed of responding to the question
5 is immaterial to the winner of the contest and/or correct answer. Also, in the event one patron answers the question late, there will be no confusion which question the patron is submitting an answer for. Patrons text message and/or email and/or answer questions via voice-to-text messaging their answers as indicated above using the unique set of answers, in one embodiment. In alternative embodiments, the first predetermined number of patrons that answer the question
10 correctly are considered the winners.
15

The system can then display the overall number of answers that are correct and incorrect, e.g., a1 50%, b1 28%, c1 12% and d1 10%, and
20 display bar graphs and the like to the event patrons by displaying on a display, such as the scoreboard of a sporting event. The system then identifies the patrons that have correctly answered the question and can then send new
25 questions to be answered just to the previously correct patrons, thereby further narrowing the

group of patrons. Successive questions can be sent, including questions that are not multiple choice and that require actual text to be entered via standard wireless device interfaces, and patrons are successively eliminated until a single or sub-set of patrons are determined to be the winners. Advantageously, the present invention provides entertainment to the patrons at the event by optionally providing successive questions throughout an event. In another alternative embodiment, simultaneously with the questions to the patrons present at the event, the present invention is also capable of sending the questions to patrons that have registered with the system, but are not at the event, for example, at home watching on the television or simply not currently involved in the game. The present invention is able to transmit the same and/or different questions to those registered users as well.

Further, in another alternative embodiment of the present invention, viewers watching the television, for example the same event that patrons are attending, may be presented with the same and/or different questions as well as an address and/or telephone number to call and provide their answer which they can compete with

patrons at the event or can be used to provide a separate comparison of the answers and/or separate winners to the contest. In this embodiment, for example, questions may be displayed on the 5 television, Internet website, and the like, during the event, and viewers watching the television may respond to the questions as described above. The system can optionally compare the percentage of correct answers between the television viewers and 10 the patrons at the event, and/or provide separate awards or a single award to the winners from the pool of television/Internet viewers and/or patrons in the event.

15 As discussed above, one or more of the above alternative embodiments may be incorporated into the embodiments described above, and/or any of the embodiments discussed below. Furthermore, any of the embodiments of the present invention 20 may be used for any reserved seating or other event admittance.

FIG. 24 is a flowchart of a second embodiment of the invention. In FIG. 24, the 25 process begins as all tickets are checked in, for

example, as the patrons enter the reserved seating area, such as a stadium or theater, through, for example, bar code readers, scanners, infrared readers, and/or manually or other method where the 5 patron is checked in, either at the gate, seat or other location. For example, patrons can optionally check in a predetermined time before the event through a wireless device, Internet connection, manual or voice recognition telephone, 10 or other manner. The important point is to provide a standard manner for allowing patrons to check in, and if the patron fails to check in using a predetermined procedure, to allow that seat to be provided to another willing patron in 15 accordance with a process to be described below. Currently, such a process is impossible and unthinkable in view of the difficulty reserved seating events have in simply getting the patrons seated prior to the beginning of the event. The 20 present invention represents a revolutionary process to enhance event enjoyment, earn patron loyalty and optionally provide additional revenues to the theater/stadium or optionally other patrons with the desirable ticket.

The check in procedure continues for a predetermined period of time until a predetermined time period has expired, for example, 5 minutes before the event begins, 10 5 minutes after the event begins, after a predetermined event, such as the second act of a play, and the like. Once the predetermined time period or event has been completed, the check in procedure may be considered completed to begin 10 the seat re-allocation process. To begin the seat re-allocation process, a re-allocation algorithm is used to re-assign seats for patrons that are willing or interested in different or better seats. Such re-allocation processes or 15 algorithms may include a random process, a process where priority patrons are given priority for re-assignment of seat, a process where patrons are willing to pay additional for the re-assignment to either the theater or the 20 individual patron whose seat is being provided to another patron, frequent event patrons, season ticket patrons, or other predetermined process.

If the patron that is identified by the 25 re-allocation process is determined to be present

in the theater, for example, via mobile telephone, wireless device, and/or manual verification, an optional sub-process determines whether the patron's optional profile is also satisfied with the available seating. If the optional subscriber profile is not satisfied, then the re-allocation process searches for another possible patron. If the optional profile sub-process is satisfied, then the eligible patron is notified via one or more means, such as announcement, manually, wireless device, mobile telephone, bulletin board, and/or other means. The patron is then notified and presented with the option of moving for free, use of award points, additional money to the theater and/or patron to whose seat is being provided, or other predetermined criteria to obtain the seat. The patron, of course has the option to decline, and if so, the process continues and returns to the re-allocation process to attempt to locate another possible patron.

If the patron accepts, payment of money or other means may be effectuated on the spot via the wireless device, credit card, debit card, points, and the like, and the patron may now move to the

other seat. In addition, the original ticket holder is optionally reimbursed with award points, a percentage of the revenue, a flat fee, an additional event ticket that might also be
5 upgradable, and/or any other means for rewarding the original ticket holder. The patron's seat may then optionally be made available as an empty seat to the re-allocation process. If a predetermined period of time has not expired, then the re-
10 allocation process may be run again to optionally continuously re-allocate seats. The patron may optionally store the up-graded ticket on a wireless device for proof of entrance to the better seating area. Optionally, the seat and/or
15 row and/or section, includes a separate reader device to receive optionally the original ticket that is now re-allocated to a better seat, or a new ticket that may optionally be received by the patron via the wireless device and/or manually via
20 a worker in the theater or stadium.

In accordance with the invention, as indicated above, when the patron registers for ticket re-allocation and/or purchase, via for
25 example the Internet, the patron may enter payment

information at that time. Accordingly, when the patron accepts the ticket re-allocation and/or purchase, the system can automatically charge the patron without the patron actually
5 submitting/typing, for example, credit card information over a wireless device. The tickets of the present invention may be used to re-allocate patrons that are sitting in the stadium and/or patrons that may be in the vicinity of the stadium
10 but were unable to get seats. Since the present invention re-allocates and/or sells tickets very near to game time in accordance with one embodiment, the patron must be in the general vicinity of the stadium to take advantage of this
15 embodiment of the invention.

As described above, the patron may be transmitted, for example, emailed, the actual ticket or a confirmation number that they can use
20 proceed to their seat and/or re-allocated seat. An optional graphical display via, for example, GPS, as discussed above may be used to guide the patron to the new location upon acceptance, as well as to help the patron decide whether to purchase the
25 ticket and/or upgrade. For example, a graphical

map of the stadium and/or textual description may be provided to the patron to help the patron decide the quality of the upgrade and whether to accept.

5 In one alternative embodiment, if the patron that has their ticket re-allocated in error, e.g., because the patron did not show up to the event based on the predetermined criteria but the patron was still planning on attending because
10 they forgot about their seat being re-allocated, the system can re-allocate seats immediately upon the checking in of the patron and notify them that their seats have changed because they are late. In this situation, the stadium/venue might decide to
15 further upgrade the patrons because of the mistake.

In accordance with one embodiment of the present invention, the process of the present invention specifically reserves seats of the highest or very high rating that are considered preferred, in the event a patron's seat is re-allocated prematurely or erroneously. In this situation, the patron who has had their seat re-
20 allocated because they will likely receive an even
25

better seat as a result of the mistaken (stadium or patron) or premature seat re-allocation.

In another embodiment of the present
5 invention, as patrons are entering the venue or stadium, they are provided advantageously with a map of the stadium so patrons can analyze the potential upgrade to make a decision whether the upgraded seats are sufficiently good or of value
10 to warrant the patron moving and/or paying for the additional upgrade. By handing the patron the map of the stadium, the process of the the present invention is not required to transmit a detailed schematic to the patron's wireless device which
15 would not normally be able to effectively permit the patron to evaluate the proposed upgrade seats. The map that is handed out may optionally include information for patrons on where to register for the upgrade and/or additional advertisement
20 opportunities.

In one alternative embodiment, the patron that has purchased the ticket, for example, a season ticket holder, may advise the stadium that

for a particular game, set of games or all games, they do not want their seats to be re-allocated, and perhaps, an additional fee is assessed for this type of patron. If the stadium provides the
5 ability for the patron to selectively opt out of the seat re-allocation, the patron can, for example, connect to the system via the Internet, public switched telephone network, cellular network, and the like, and notify the system that
10 they do not want their ticket re-allocated, for example, because they are coming late to the event. Other means of notifying the system and/or other reasons may be utilized in connection with the present invention.

15

In another alternative embodiment, the system provides patrons the ability to individually select when their tickets may be re-allocated. For example, one patron may prefer to
20 only give up their ticket if they are late to the game by 15 minutes, while another patron may be willing to give up their ticket if they have not arrived 15 minutes before the game. In alternative embodiments, the stadium may provide incentives
25 for the patron to have their ticket re-allocated

prior to the game because it increases the stadium's chances of re-allocating/re-selling the ticket.

5 The present invention has particular benefits for stadiums that are constantly sold out, but where patrons habitually do not show up. For example, many stadiums are sold out by season ticket holders that do not show up to the game on a regular basis. The present invention permits these tickets to be re-allocated in accordance with, for example, predetermined algorithms, and provide additional patrons a better experience. In addition, the present invention has the benefit of moving the patrons closer to the action/players, and therefore, the ability to support and/or motivate the players to play well. In additional alternative embodiments, the stadium may provide the original ticket holder a portion of the 10 proceeds as a result of the ticket re-allocation, thereby providing additional incentive to the ticket holder to permit their ticket to be re-allocated (when this is a voluntary program in the stadium). The stadium may then keep a percentage, 15 portion or service fee from the resale and/or re- 20 25

allocation of the ticket. Of course, the above embodiment may further apply to yet another embodiment where the stadium does not offer the upgrade to patrons sitting in the stadium, but to
5 patrons that, for example, may be in the geographic vicinity of the game but that may not currently have any tickets or that may be willing to purchase the tickets when availability is determined and to travel to the event.

10

In an alternative embodiment, the system determines priority of re-allocation of seats based first upon patrons that have seats that may also be re-allocated. That is, the systems
15 attempts to maximize the number of re-allocations by prioritizing the re-allocation based upon seats that may be re-allocated after already being re-allocated. For example, if front row seats in a stadium are available to be re-allocated, in this
20 alternative embodiment, patrons that are in the next closest section for example on the field level would be upgraded first to those seats. Then, patrons with less preferred seats, for example, in the upper deck would be re-allocated
25 to the seats that have now become available from

the patrons that have been upgraded to the front row. Thus, using this alternative priority scheme, the present invention maximizes the re-allocation numbers. Of course, this priority algorithm may be
5 combined with additional factors, for example, relating to subscriber/patron value. As described above, additional factors may be utilized in the algorithm to determine the subscriber or set of subscribers to offer the upgrade.

10 In alternative embodiments, patrons in the vicinity of the upgraded and re-allocated patrons may optionally rate the upgraded patron, for example, for appropriate behavior, wearing of excessively large hats, drunkenness behavior, and
15 the like. These ratings may then be taken into account in the re-allocation algorithm for future upgrades to the patron.

20 In alternative embodiments, the patrons eligible for the upgrade may be notified using standard email communications over a wireless device, mobile telephone, and/or other standard communication means. For example, standard text-to-voice and/or voice-to-text communications may
25 be used to contact the patron to evaluate whether

an upgrade will be accepted and to actually accept the upgrade.

In another embodiment of the invention, as indicated above, when the patron registers for ticket re-allocation and/or purchase, via for example the Internet, the patron may enter payment information at that time. Accordingly, when the patron accepts the ticket re-allocation and/or purchase, the system can automatically charge the patron without the patron actually submitting/typing, for example, credit card information over a wireless device. The tickets of the present invention may be used to re-allocate patrons that are sitting in the stadium and/or patrons that have already purchased tickets in the vicinity of the stadium but were unable to get seats and/or may be in the vicinity of the stadium but were unable to get seats. Since the present invention re-allocates and/or sells tickets at any time prior to and/or after beginning of game time in accordance with one embodiment, the patron may be in the general vicinity of the stadium to take advantage of this embodiment of the invention or even at any location when being offered upgrades

and/or seats well in advance of the game. For example, the present invention can upgrade or sell tickets to patrons well in advance of the game since it advantageously is permitted or has the
5 authority to resell tickets either via ticket holders that do not show up during the game and/or, for example, season ticket holders that have authorized the stadium in advance to resell their tickets based on predetermined criteria, for
10 example, when the season ticket holder notifies the stadium that they will not be present at next weeks game.

In one optional embodiment of the
15 invention, the patron presents the usher with the confirmation number which the usher can enter into a wireless device using a local or private wireless network, or can simply use a walkie talkie or telephone to call the dispatcher to confirm the upgrade and/or new seats using the customer provided confirmation number. The
20 dispatcher will have access to the system to enter the confirmation number to confirm the validity of the upgrade. Alternatively, a patron will retain
25 their old ticket. The patron will give in the old

ticket to the usher which is scanned or barcoded by the usher for immediate identification of new seats and used in place of, or in addition to, confirmation number.

5

Of course, the confirmation may optionally be made via customer name with an appropriate identification card or other information. Further, alternative methods may be used to verify
10 that the confirmation number and/or ticket being used by the patron is valid. For example, the patron may be equipped with a printing device associated with the wireless device or download an actual ticket on line from home prior to the game
15 for the new ticket or upgrade. Alternatively, the patron may be equipped with an identifier card, optionally including a bar code with a unique identifier relating to the patron's account information and profile that can be scanned for
20 additional convenience. Alternatively, a wireless device may be used to securely store this type of identification and/or account information.

In at least one alternative embodiment of the invention, the patron may comprise optionally a corporate account that has a number of tickets, for example, season tickets. In this embodiment, 5 the corporate account may have associated therewith a plurality of email addresses or other communication addresses to transmit the seat or upgrade offer to a number of potential patrons that may rotate their attendance at the games. In 10 accordance with this optional embodiment, multiple emails can be stored for a single user/corporate account, and the system may transmit individual messages to all email addresses, or may only transmit messages to individual patrons for 15 corporate account that individually advise the system that they are associated with a particular ticket/bar code for a particular game and will be/are present at a particular game.

In an alternative embodiment, patrons may 20 enter the stadium and subsequently inform the system that they are present and interested in an upgrade via a kiosk where the patron can scan a bar code and enter their customer number to be eligible for upgrades during the game. The system 25 is then able to transmit a message to the customer, assuming that the customer has pre-

registered with the system with the appropriate contact information. Alternatively, or in addition to individual use of a kiosk(s), the customer sales office may have a kiosk or additional 5 functionality to enter the customer name and/or customer account and scan in the bar coded ticket on the spot to register each patron as they enter the stadium or venue.

10 As described above, the patron may be transmitted, for example, emailed, the actual ticket or a confirmation number that they can use proceed to their seat and/or re-allocated seat. An optional graphical display via, for example, GPS, 15 as discussed above may be used to guide the patron to the new location upon acceptance, as well as to help the patron decide whether to purchase the ticket and/or upgrade. For example, a graphical map of the stadium and/or textual description may 20 be provided to the patron upon entry in the stadium to help the patron decide the quality of the upgrade and whether to accept when an offer is received by the patron at a predetermined time. The graphical map may comprise a small booklet

with a map of the stadium showing seat locations, and optionally a game schedule.

The present invention has particular
5 benefits for stadiums that are constantly sold
out, but where patrons habitually do not show up.
For example, many stadiums are sold out by season
ticket holders that do not show up to the game on
a regular basis. The present invention permits
10 these tickets to be re-allocated in accordance
with, for example, predetermined algorithms, and
provides additional patrons a better experience.
In addition, the present invention has the benefit
of moving the patrons closer to the
15 action/players, and therefore, the ability to
support and/or motivate the players to play well.
In additional alternative embodiments, the stadium
may provide the original ticket holder a portion
of the proceeds as a result of the ticket re-
20 allocation, thereby providing additional incentive
to the ticket holder to permit their ticket to be
re-allocated (when this is a voluntary program in
the stadium). The stadium may then keep a
percentage, portion or service fee from the resale
25 and/or re-allocation of the ticket. Of course, the

above embodiment may further apply to yet another embodiment where the stadium does not offer the upgrade to patrons sitting in the stadium, but to patrons that, for example, may be in the
5 geographic vicinity of the game but that may not currently have any tickets or that may be willing to purchase the tickets when availability is determined and to travel to the event.

10 In alternative embodiments, patrons in the vicinity of the upgraded and re-allocated patrons may optionally be eligible for a dating or matching service where patrons register and provide profile information to the system and/or
15 through a third service provider dating service. Once the system knows that the patrons will be coming to the game and/or have actually checked in to the stadium, the system can then arrange for the two, four, etc. patrons to meet each other by
20 allocating and/or re-allocating seats to the patrons together. Thus, based on profile information, customer request and availability, the system is able to upgrade or sell tickets to patrons to maximize their chances of meeting
25 someone at the game. This optional feature

provides significant potential enjoyment for the patrons participating in this dating or connection program. In accordance with this embodiment, one possible sequence of acceptance steps involves

5 profile matching the two patrons (or groups of patrons) based on predetermined profile information; transmitting a first message to the first patron regarding availability of the second patron and requesting a conditional acceptance

10 form the first patron; transmitting a second message to the second patron indicating that the first patron has conditionally accepted and request the second patron to accept; and when the second patron accepts before the first patron has rescinded the conditional acceptance, finalizing

15 the upgrade and/or seat allocation for the first and second patrons. This embodiment of the invention is a complete reverse from typical dating and/or matchmaking services which attempt

20 to develop detailed algorithms for the matching process because of the significant decision that exists in determining who to spend valuable time with. In accordance with the invention, patrons are already present at the game, and therefore,

25 half or more than half the effort is already done. The remainder is to actually meet the other person

which can be accomplished with profile criteria, whether or not the algorithms are very sophisticated.

5 In one embodiment, the patrons that are being matched have their original seats maintained and not made available for other upgrades in the event the matching does not work out early on. In this embodiment, one or both the patrons can
10 return to their original seat. Hopefully, there will not be a significant argument of who would need to return to their original seat if an upgrade is actually performed. In addition, in accordance with this embodiment, the seats that
15 are selected do not necessarily have to be better seats in the classical sense. That is, seats further away from other ticket holders might be considered preferred when matching two individuals for the first time. Alternatively, couple that
20 would prefer a little more privacy or quieter game might request to be moved to a more isolated area. Alternatively, families with small children might prefer to be moved to a less busy area as well during the game where the children might be able
25 to freely move around. All these scenarios and/or

alternatives are possible in view of the present invention. The advantage of performing a match in a public setting is that the patrons do not have to worry about leaving or ending the date, and
5 also do not have to worry that the other person will have their home address.

In an alternative embodiment of the dating/matching service of the present invention,
10 a dating/matching service is provided to patrons that enter a predetermined location and/or geographic area. The patron can enter physically the location and/or geographic and register, for example, by manually entering data in a computer,
15 transmitting information relating to the registration of the patron via infrared, Bluetooth and/or other technology, and/or automatically register via use of GPS information associated with or used in a wireless device associated with
20 the patron. For example, patrons that enter an establishment can register upon entry that they are now present within the general location of the establishment. Upon registry, the system can implement various matching algorithms currently in
25 use by various matching services in connection

with other patrons that have also registered at the same location and/or a location in the general area that the original patron registered.

According to this embodiment, the system

5 advantageously matches individuals that have registered in the same geographic location and/or geographic locations that are in the same general area where the patrons can walk and/or drive to meet each other in the same general time frame,
10 such as the same evening, same afternoon same day, and the like.

In addition, this feature also optionally permits the patrons that have participated in the
15 program to rate one another for future dates. For example, one patron can rate the conversational benefits of the second patron, the appearance of the second patron, the overall short term versus long terms relationship goals of the patron, and
20 the like. These ratings may then be taken into account in the algorithm for future seat assignments, re-allocations and/or upgrades in the future for the first and second patrons, and all other patrons will now benefit with the additional
25 profile information of the first and second

5

patrons. The matching service may be for amusement or work related networking purposes, for example, to meet an executive that the patron currently works with or wishes to work with/sell in the future.

10

In an alternative embodiment of the dating/matching service of the present invention, a dating/matching service is provided to patrons

15

that enter a predetermined location and/or geographic area. The patron can enter physically the location and/or geographic and register, for example, by manually entering data in a computer, transmitting information relating to the

15

registration of the patron via infrared, Bluetooth and/or other technology, and/or automatically register via use of GPS information associated with or used in a wireless device associated with the patron. For example, patrons that enter an

20

establishment can register upon entry that they are now present within the general location of the establishment. Upon registry, the system can implement various matching algorithms currently in use by various matching services in connection with other patrons that have also registered at

25

the same location and/or a location in the general area that the original patron registered.

According to this embodiment, the system advantageously matches individuals that have registered in the same geographic location and/or geographic locations that are in the same general area where the patrons can walk and/or drive to meet each other in the same general time frame, such as the same evening, same afternoon same day, and the like. In addition, the system advantageously and optionally provides the feature of allowing patrons to text message one another directly, and/or exchange pictures via wireless email, text messaging, and other wireless devices that provide the standard capability of exchanging pictures, such as T Mobile and/or Sprint.

In alternative embodiments, the ticket holder can call in via a voice to text message, text message and/or email and let the stadium know early that they are not coming. In this manner the ticket holder obtains the convenience of the stadium or venue reselling their tickets in advance, thereby providing the venue with

additional time to maximize the resale of the ticket.

In alternative embodiments, when the
5 patron enters the stadium, they have their ticket
barcoded or other device that detects their
presence can be used such as infrared, Bluetooth,
etc., and then they can become eligible for an
upgrade. The patron can register in advance that
10 they want to receive upgrades by providing their
name, message address, e.g., email, telephone text
message address, etc., and optionally their credit
card or other payment mechanism for upgrades that
actually cost money as opposed to free upgrades.

15 In alternative embodiments, the patron can
register at the ticket booth when purchasing their
original ticket. In this scenario, the stadium
representative can enter this information on
behalf of, and with the permission of, the patron
20 since the patron may already be providing their
credit card, debit card, etc. to purchase the
original tickets. Alternatively or in addition, a
kiosk may be provided where the patron can enter
their original ticket, e.g., scan in their
25 original ticket and provide their name and text

message information in the stadium to register for a one time upgrade for the game after purchasing, for example, a regular admission ticket.

5 In alternative embodiments, an usher can verify that the patron should be upgraded by the patron providing the confirmation number that may be transmitted in real-time by the system, and/or by the patron using their original confirmation
10 number or original ticket with barcode or other identification means, such as a smart card, infrared reader, etc. that represents original ticket and presenting same to the user. The usher then needs only to scan in the original ticket and
15 the system will verify whether the patron associated with the original ticket is valid and whether the upgrade is valid.

20 In alternative embodiments, a warning message may be sent to the ticket holder that has not shown up to game warning them that if they do not respond within a certain time period that their seat will be re-allocated or re-assigned to another patron. Similarly, a release message may

be sent to the ticket holder after their seat has actually been released and/or re-allocated, thereby notifying the patron that if they change their mind in attending the game, they will have 5 to obtain an additional ticket. In alternative embodiments, the ticket holder that has their seat released and re-allocated can be themselves re-allocated a similar, worse or better seat, depending on, for example, their subscriber value 10 and/or other criteria. For example, if the patron is provided a better seat, this will encourage them to more readily give up their seats in the future even if they are attending the game. On the other hand, if the patron is provided a worse 15 seat, then this encourages them not to artificially give up or have their seat released when attending the game. Accordingly, the present invention is designed to deal with various behavioral patterns of specific ticket holders, 20 and may optionally and advantageously be a ticket holder specific with respect to various criteria for re-assigning, releasing, selling and/or re-allocating tickets.

In alternative embodiments, the system transmits to the ticket holder a welcome message after being upgraded and after having been moved to a new upgraded seat location. In one 5 embodiment, the system identifies that the patron has been successfully upgraded after the patron provides the usher with a confirmation number or original ticket, which is then verified by the usher and system.

10

In alternative embodiments, the system, after having identified which patrons have checked into the stadium and/or have been upgraded, transmits a trivia question and/or additional 15 advertisements to all patrons attending the game. In alternative embodiments, the information is transmitted to both patrons that are attending the game and additional patrons that have registered in the past to receive information but that are 20 not attending the game. The participants can, for example, answer trivia questions and respond with their wireless device. Depending on whether the patron is attending the game or not, the system may determine to offer or deal with each of the 25 patrons differently. For example, for patrons at

the game, winners may be successively determined and narrowed, as patrons successfully and unsuccessfully answer questions, round after round of questions in a "spelling bee" format. For
5 patrons that are not attending the game, winners may be declared, or statistics provided to the broadcast station that can be aired on television. In yet additional alternative embodiments, instead of transmitting information/questions to the
10 patrons via the wireless device, the information/questions are displayed on the stadium billboard for patrons at the game and/or on television for patrons that are watching the game on television. The patron can then merely respond via the device, e.g., the telephone accordingly
15 via a voice-to-text system or via other mobile devices via text messaging.

In alternative embodiments, the
20 present invention provides the advantage of additional advertising sponsorship to the venue. For example, in one embodiment, the venue is partitioned into different locations that may be assigned to different sponsors. In one embodiment,
25 the sponsor that provides the most value may be

assigned a certain number of premium seats that are not available to other sponsors.

For example, the sponsor may offer a
5 discount on the upgrade if you are a Verizon or
Verizon Wireless customer or they credit your cell
account for each seat upgrade or you get say 30
free minutes, etc. In alternative embodiments, the
present invention provides the advantage of one
10 wireless provider to advertise on another wireless
providers mobile phone or wireless device. For
example, if Verizon Wireless is a sponsor of the
upgrade system for a particular stadium, the
present invention will still work with, for
15 example, AT&T, SPRINT, and CINGULAR customers. An
advertisement message sent with the upgrade offer
may read on the AT&T phone, "brought to you by
Verizon Wireless." In an alternative embodiment of
the present invention, text messaging is
20 optionally used for mobile phones to perform the
message communication of the present invention.
The user is only required, in one embodiment, to
reply or respond with a "Yes" to accept the
upgrade offer since the user has advantageously
25 pre-registered with the system, thereby minimizing
the required communication/input by the user. In

an alternative embodiment, the user, instead of pre-registering with the system, is charged on their wireless or even regular telephone number bill when they accept the upgrade offer. Thus, the
5 wireless system that either administers the user's regular or wireless account or the upgrade sponsor may be responsible for actually billing the customer in this alternative embodiment.

10 In the alternative embodiment when text messaging is optionally used alone or in combination with other communication methods, the system provides the additional advantage of maximizing bandwidth usage by not requiring use of
15 bandwidth on the wireless voice system, thereby maximizing system resources.

20 In another alternative embodiment,
the present invention optionally and
advantageously provides a security and/or safety
feature in the event of, for example, a minor
event where a parent gets separated from a child,
a disaster or other event that might require
evacuation of the stadium. In one embodiment, the
25 person needing help provides their name to an
attendant that can search the system for the

contact information of their companion/parent. The system can thereafter send an email and/or text message to the companion/parent regarding the status of that person and provide instructions for meeting that person or arranging help, authorizing medical procedures, and the like. In another embodiment, the person requiring help, e.g., a child provides the attendant or kiosk with their ticket which can, e.g., scan the bar code or other reader system. The system can either automatically provide a text message to the parent who can then reply to the child/attendant via the kiosk to meet the child.

15 Alternatively, the parent can be instructed to meet the child at a predetermined location, and to stop looking for the child because the child was found. Thus, for this example, the person who is lost or separated from
20 their party can notify security or access a kiosk. Security can, for example, notify the parent that child is in safe custody, and should not search the stadium, and therefore, meet outside stadium in a pre-specified safe place.

In an alternative embodiment, if a child/person is separated, the security guard/kiosk can arrange the best place to meet, either in or outside the stadium, together based
5 on an optional global positioning system (GPS). In addition, the party with the mobile device can be provided directions on where to go to meet their party from who they have been separated.

10 In an alternative embodiment, the present invention may also be used in a security, defense and/or safety setting to direct patrons in a stadium for an orderly evacuation or notify patrons regarding status of a safety related event
15 via, for example, a broadcast message including text message, email and the like. In this manner, system communication resources may be most efficiently utilized by not over-utilizing the system via voice communication, unless completely
20 necessary. For example, the message can be broadcast in the event of an impending hurricane. In this situation, patrons in different sections get different messages, for example, to exit the stadium out of gates/exits that are either less
25 occupied or closest to the section the patrons are sitting in. Advantageously, the present invention

has the patrons contact information, including
optionally and advantageously text messaging, that
can be broadcast or sent to different patrons. The
advantage of text messaging is that the bandwidth
5 is more efficiently used in the event of an
emergency, and there are no busy signals as in a
voice network. Further, the message is send, and
if the network is at capacity, the system can
automatically resend or the message will be placed
10 in queue and sent as soon as capacity becomes
available.

In another alternative embodiment of
the invention, the security bracelets of the
15 present invention can be required to be displayed
and read on exit from a venue when a parent has
reported that a child has been separated. In this
event, all patrons are checked when they exit the
stadium. The parent can report the specific seat
that the child was sitting in, and then on exit,
20 all patrons are checked. If the specific seat
appears or if a child attempts to leave without
scanning or presenting their bracelet, then that
child can be taken into custody until their parent
25 arrives, thereby possibly preventing abduction.

For instance, in sporting venues the bracelet ticket includes the machine readable information that comprises at least one of a bar code and radio frequency identifier used for security check in, and optionally check out. In this manner, the standard reading machines that can scan the bar code or RFID information can keep track of people that have checked into the sporting event and/or venue. Advantageously, the machine readable information on the bracelet can also be used by the venue in the event the patrons seat assignment is modified, for example, via an electronic ticket exchange or upgrade program. In this embodiment, the visible indicia are no longer valid for the actual seating that may be dynamically changed and only represents optionally an initial seat assignment. However, the machine readable information may be used as a code to reference the specific patron and assign that patron a new seat. Thus, when the ticket reader scans the ticket and actually identifies, for example, the bar code, this information can be used to reference the patron, update and/or confirm the patron's current seat via the reader used, for example, by ushers in the venue, kiosk, entrance to the venue, and the like.

In an alternative embodiment, the security bracelets of the present invention can be required to be displayed and read on exit from a venue when
5 a parent has reported that a child has been separated. In this event, all patrons are checked when they exit the stadium. The parent can report the specific seat that the child was sitting in, and then on exit, all patrons are checked. If the
10 specific seat appears or if a child attempts to leave without scanning or presenting their bracelet, then that child can be taken into custody until their parent arrives, thereby possibly preventing abduction. This information,
15 as previously mentioned, may be visually cognizable for the patron and in combination, readable by electronic means if the bracelet includes a magnetic strip, bar code imprinting, or RF chip.

20

In an alternative embodiment of the present invention, the security bracelet and ticket combination of the present invention advantageously includes a bar code or other
25 machine readable information such as a RFID device. When, for example, a child is separated

form their parent, the parent can notify security and the seat number associated with the child. If the child attempts to leave with their bar code/identifier, the system detects the bar code/identifier as either being valid and identifying the child that is missing or being invalid and raising another red flag. In an alternative embodiment, the bar codes/identifiers associated between children and adults correspond such that the child identifier must be within a predetermined time and/or number of checking out identifiers from/within the adult identifier. If this does not occur, the system determines that the child is leaving without their parent, and possibly being abducted.

In an alternative embodiment, the system links one or more tickets/identifiers together and requires the tickets/identifiers to exit the venue or event within a predetermined time period from one another and/or within a predetermined number of tickets/identifiers that have exited the venue and/or event. In the event that one ticket/identifier exits the venue or event and the associated identifier does not, then an alarm or

other indictor occurs, and the attendants will detain the patrons that have initiated the alarm to for security purposes.

5 In an alternative embodiment, the tickets are advantageously coded with designations such as adult, child and the like. In the event a child ticket/identifier exits the stadium before the associated adult and/or more than a predetermined time period and/or number of patrons exiting, the system can initiate an alarm so that an attendant can determine if a child has exited the venue or event without their parent or with a wrong parent potentially averting a kidnapping. In this

10 embodiment, an additional combination is the use of the standard fast pass feature, for example, at theme parks, and the like, where the venue records predetermined events that the user of the card enters in a faster line. In this embodiment, if a

15 child ticket/identifier is not associated with a parent ticket/identifier, for example, as described above, the child may be denied entry into the event or venue if not accompanied by their parent. In alternative embodiments, the

20 venue/event sponsor or organizer associates

25

5 tickets upon request from the patron. In addition, in another alternative embodiment, a kiosk is provided inside and/or outside the venue for, for example, parents to register their tickets and have them associated with their children's tickets to prevent the child from exiting the venue without them, for example, as described above.

10 In an alternative embodiment of the present invention, the system and method are adapted to utilize any type of wireless device with different interface and communication options. For example, different wireless devices have different constraints with respect to the interface, e.g., 15 number of characters, how the subject and body of the messages are used/communicated, etc. Accordingly, the present invention optionally provides a protocol conversion system depending on the type of wireless device and the wireless 20 device constraints, including message constraints and/or the wireless communication system. In alternative embodiments, the system determines the wireless device provider based on the address received from the wireless device, and is able to 25 automatically determine the type of message and/or

message constraints and transmission constraints associated therewith based for example, on real-time information or on pre-determined stored information on the device and/or communication system. Accordingly, a protocol conversion system for different wireless devices is provided by the present invention for sending and/or receiving messages, such as upgrade offers, responses, acceptances, and the like, from a variety of different users/mobile devices and wireless systems.

In another alternative embodiment of the present invention, a security bracelet is advantageously utilized, for example, such as the security bracelet disclosed in U.S. application number 10/680,207, filed on October 8, 2003, to Abraham I. Reifer, et al., and incorporated herein by reference, in the event of a reported event, security breach, abduction, and the like. In this embodiment, all patrons exiting the stadium must show their ticket and/or identifier so that the venue can check all patrons out of the stadium. Thus, for example, if two kidnappers come in the stadium, and want to use one bracelet for a child, the second kidnapper will be stranded in the stadium. In addition, if one kidnapper buys two

tickets, then upon exit with the child and the additional ticket, a barcode/identifier will be exiting without ever having checked in, and then the alarm will go off as well.

5

In another alternative embodiment, the present invention provides a broadcast message to warn patrons of an event, such as an advertisement, sale and/or even a weather related event such as a hurricane that might require the venue to be evacuated. Advantageously, in at least one embodiment, the broadcast message comprises standard text messaging that optimizes or better utilizes capacity from the communication system.

10 Thus, when using text messaging capabilities, the present invention efficiently transmits text messages to numerous subscribers regarding, for example, exit information, contacting and/or meeting additional parties that have been separated, and the like.

15

20

In an alternative embodiment of the present invention, the present invention optionally provides the capability to penetrate 25 into secondary market with season ticket holders selling ahead of time the games they will not be

attending. For example, the present invention
optionally provides the feature for the season
ticket holder and/or general ticket purchaser the
ability to view in advance of the season and/or
5 game the schedule, and to alert the venue and/or
stadium of games and/or events they will not be
attending, thereby permitting the stadium/venue to
attempt to resell the tickets to other patrons.
For example, in one embodiment of the invention,
10 the patron is provided with a monthly schedule
listing the events that may be attended. The
patron, such as a season ticket holder, may then
click or place an indicator on all games they will
not be attending for the season in advance,
15 thereby providing the stadium with the ability to
resell tickets well in advance of the event. Once
the patron completes identifying games that will
not be attended, the system then compiles a list
and transmits the list to the patron for an
optional confirmation. This list is then used by
20 the system to release seats well in advance of the
game. In an alternative embodiment of the
invention, registered users of the system for, for
example, upgrades, may also be notified of seat
availability for sales prior to the game/event. In
25 an alternative of this embodiment, registered

users may receive text messages, emails, and the like, notifying them advantageously of the availability of seats that heretofore have never been easily available to the public for sale,
5 thereby allowing the venue to participate in secondary market ticket sales.

In one alternative embodiment of the present invention, the system/process of the
10 present invention provides or operates as a middle person/broker between the ticket holder that is returning tickets to the venue, such as the season ticket holder, and a ticket sales system and/or company, such as tickets.com, by notifying the
15 tickets company of the newly available seats via notification by the ticket holder, such as the season ticket holder of season ticket games not being attended.

20 In one alternative embodiment of the invention, the system and/or process transmits text messages, emails and the like, to offer tickets and/or seats and/or admittance to subscribers for events and/or games with empty
25 seats even before game. Thus, the present invention allows the venue to participate in the

secondary ticket sales market and the upgrade market, thereby increasing revenue and fan loyalty.

5 Of course, all of the embodiments of the present invention may be used for any reserved seating event, and/or venue that require tickets for entry thereof.

10 In another alternative embodiment of the present invention, the use of machine readable identifiers provides advantages for, for example, the upgrade program or ticket exchange of the present invention. For example, when the upgrade, 15 re-allocation and/or electronic ticket is issued, the machine readable identifier, for example, the bar code, on the original ticket is invalidated, thereby preventing use of the invalidated ticket. Accordingly, when a new ticket holder purchases 20 the ticket form the season ticket holder, the new purchaser will be issued a new machine readable identifier, and optionally a new paper ticket. The present invention advantageously is able to handle the issuance of a new ticket and invalidates the 25 old ticket and optionally the old identifier that has, for example, been returned by the season

ticket holder, thereby providing dynamic ticketing capability.

In an alternative embodiment of the present invention, the new patron obtains a new identifier such as a barcode, the old bar code of, for example, the season ticket holder is invalidated. In one embodiment of the invention, season ticket holders are offered to opt in the upgrade process. Various commercial incentives are possible for the season ticket holder to opt in the upgrade process, such as monetary compensation when their ticket is used for an upgrade and/or resold whether they express their intention not to go to the game prior to the game, and the like. Alternatively, season ticket holders may be offered that the cost of their season tickets will, for example, remain the same as the previous year or be reduced if they participate in the program. Therefore, the combination season ticket trade-in and upgrade program in one embodiment of the invention will be beneficial to season ticket holders by allowing them to trade when they already know that they have no intention of attending a game, and allow the season ticket holder to recoup some cost of the season tickets

if they do not attend and their ticket is used as
an upgrade. In addition, additional patrons of the
event and/or sports team are permitted to attend
the game in locations/seats that they might never
5 have been able to obtain access to. Further, the
venue/stadium/team maximize revenues by being able
to place tickets on the secondary market when the
ticket holder notifies the venue early enough that
they are not attending the event, the venue also
10 obtains additional revenue from upgrades when
tickets are upgraded, and the venue obtains
additional fan loyalty.

In another embodiment of the present
15 invention, the system provides the ability to
advertise via email, text messaging, and the like,
for one wireless carrier on the wireless device
that is using another wireless carrier. Since the
user of the wireless device has requested the
20 service, the user appropriately receives the
communication from the ticketing system of the
present invention, and therefore, also
appropriately received the advertisement from the
wireless carrier that is different than the
25 wireless carrier that the user of the wireless may
be using at that time.

In another alternative embodiment of the present invention, offers to purchase seats either during the game or even well in advance of the game are "pushed" or transmitted out to registered users that have supplied their wireless and/or Internet addresses. For example, patrons can register in advance for the upgrade and/or regular ticket offers to purchase admittance via various methods including the Internet. When seats band/or admittance becomes available, a broadcast message or other standard messages may be transmitted to the registered patrons to notify them of the seat availability. Thus, seat offers are "pushed" to registered users that have requested this service advantageously to a wireless device and/or other address including standard telephone communication, as well as additional optional advertisements. The system, in one alternative embodiment, provides the user the option when registering to accept certain types of advertisements to be received on their wireless device via email and/or text messaging. In other embodiments, the user does not have the option of which advertisements to receive.

Advantageously, in accordance with one alternative embodiment of the present invention, if a patron decides to attend an event such as a sporting event when the patron does not have time to wait to receive paper tickets (e.g., the patron is visiting in another city/location and does not have time to wait to receive tickets via mail and is on the go), the system of the present invention transmits a ticket to the patron via, for example, a wireless communication system and/or other standard electronic communication system such as the Internet, and the patron can present their ticket, for example, on their wireless device and show up to game.

In another embodiment of the present invention, an interactive patron entertainment system is provided where trivia questions, for example multiple choice questions on a variety of topics, are sent to the patron via email and/or text messaging and/or displayed on the scoreboard with an address to respond, such as trivia@utixx.com. Patrons then text message and/or email and/or answer questions via voice-to-text messaging their answers. The system can then display the overall number of answers that are

correct and incorrect, display bar graphs and the like to the event patrons by displaying on a display, such as the scoreboard of a sporting event. The system then identifies the patrons that have correctly answered the question and can then send new questions to be answered just to the previously correct patrons, thereby further narrowing the group of patrons. Successive questions can be sent, including questions that are not multiple choice and that require actual text to be entered via standard wireless device interfaces, and patrons are successively eliminated until a single or sub-set of patrons are determined to be the winners. Advantageously, the present invention provides entertainment to the patrons at the event by optionally providing successive questions throughout an event. In another alternative embodiment, simultaneously with the questions to the patrons present at the event, the present invention is also capable of sending the questions to patrons that have registered with the system, but are not at the event, for example, at home watching on the television or simply not currently involved in the game. The present invention is able to transmit the same and/or different questions to those

registered users as well. Further, in another alternative embodiment of the present invention, viewers watching the television, for example the same event that patrons are attending, may be
5 presented with the same and/or different questions as well as an address and/or telephone number to call and provide their answer which they can compete with patrons at the event or can be used to provide a separate comparison of the answers
10 and/or separate winners to the contest. In this embodiment, for example, questions may be displayed on the television, Internet website, and the like, during the event, and viewers watching the television may respond to the questions as
15 described above. The system can optionally compare the percentage of correct answers between the television viewers and the patrons at the event, and/or provide separate awards or a single award to the winners from the pool of
20 television/Internet viewers and/or patrons in the event.

In another alternative embodiment of the present invention, the system uses a seat database
25 to determine which of the reserved seats are currently in use. The system may integrate with

the seat database system of a venue and/or stadium or optionally be used in parallel with the seat venue/stadium database. For example, prior to the event, the system may utilize the seat database of
5 the venue to determine available seating and patrons that do not show up after a predetermined period of time. Alternatively, the present invention can operate using a separate database from the event/venue by copying or building a
10 separate database used for the ticketing and/or upgrading according to the present invention. In this alternative, as patrons enter the venue, they are checked in directly to this separate database. At the time of the event, the system will be able
15 to check-in patrons using either the identification system, e.g., bar code scanner, of the event or venue, or provide a separate identification system.

20 In alternative embodiments of the invention, the patron that knows they are attending the game but is going to be late can send in a HOLD message even prior to being provided a warning message that their seats are to
25 be released if the patron does not respond to the message with the HOLD request. That is, in this

embodiment, since the patron already knows well in advance that they are attending the game, but perhaps stuck in traffic, the patron can initiate the HOLD message before even being warned in 5 advance of the possibility of their seat being released.

In another alternative embodiment, patrons 10 that have registered with the system and optionally checked into the stadium and/or venue in advance and who also know that they would like an upgrade and/or ticket, may initiate their own upgrade request to the system to notify the system of their willingness to purchase an upgrade and/or 15 new ticket for the event/venue. The system may then place these patrons on a higher priority since they have already expressed and intent and/or willingness to purchase the upgrade or ticket. The patron may notify the event and/or 20 stadium of their willingness optionally well in advance of the game or near/after game time at a time which the patron commits or expresses an additional heightened desire to upgrade and/or purchase a ticket.

In alternative embodiments, the system includes the advantage of allowing patrons to register free for a predetermined period of time, for example, for the first year, without paying a yearly subscriber fee. Alternatively and/or in addition thereto, the system provides the patron with their first upgrade for free or for a reduced rate to further encourage the patron to register with the system and method of the present invention. Alternatively and/or in addition thereto, the system of the present invention offers the patron reduced and/or free concessions when purchasing a membership, ticket and/or upgrade to further encourage the patron to participate in the offers of the present invention.

In alternative embodiments of the present invention, the matching system and/or process, permits participants in the program to initiate a message to the system with the seat location and/or name of the patron that they would like to be matched with for a meeting, networking and/or socializing such as a date. In this embodiment, the system may the push the message to the other

subscriber and assign new seats to the individuals
that are to be matched. Alternatively, the system
need not require a specific confirmation that the
second individual to be notified of the potential
5 match is physically located near the first
individual, but can rely on the first individual
to provide that information. For example, the
first individual may see a potential date in a
restaurant, and may then send a message to the
10 system with that person's name or address, that
they would like to meet that other individual. In
that situation, the second individual will receive
a message of the possible match, and can respond
and accept or reject the offer to meet. The second
15 individual can then provide a meeting destination
or the system can suggest a meeting place based on
the first individual advising the system of their
location, and the location of the second
individual.

20

In another embodiment of the present
invention, an interactive patron entertainment
system is provided where trivia questions, for
example multiple choice questions on a variety of
25 topics, are sent to the patron via email and/or
text messaging and/or displayed on the scoreboard

with an address to respond, such as
trivia@utixx.com. Advantageously, the multiple
choice questions each have unique selections, such
as a1, b1, c1 and d1 for question #1; a2, b2, c2,
5 and d2 for question #2; a3, b3, c3 and d3 for
question #3, and the like. In this embodiment,
the actual timing of questions is not necessary
since each question and answer is unique.
Therefore, the speed of responding to the question
10 is immaterial to the winner of the contest and/or
correct answer. Also, in the event one patron
answers the question late, there will be no
confusion which question the patron is submitting
an answer for. Patrons text message and/or email
15 and/or answer questions via voice-to-text
messaging their answers as indicated above using
the unique set of answers, in one embodiment. In
alternative embodiments, the first predetermined
number of patrons that answer the question
20 correctly are considered the winners.

The system can then display the overall
number of answers that are correct and incorrect,
e.g., a1 50%, b1 28%, c1 12% and d1 10%, and
25 display bar graphs and the like to the event
patrons by displaying on a display, such as the

scoreboard of a sporting event. The system then identifies the patrons that have correctly answered the question and can then send new questions to be answered just to the previously correct patrons, thereby further narrowing the group of patrons. Successive questions can be sent, including questions that are not multiple choice and that require actual text to be entered via standard wireless device interfaces, and patrons are successively eliminated until a single or sub-set of patrons are determined to be the winners. Advantageously, the present invention provides entertainment to the patrons at the event by optionally providing successive questions throughout an event. In another alternative embodiment, simultaneously with the questions to the patrons present at the event, the present invention is also capable of sending the questions to patrons that have registered with the system, but are not at the event, for example, at home watching on the television or simply not currently involved in the game. The present invention is able to transmit the same and/or different questions to those registered users as well. Further, in another alternative embodiment of the present invention, viewers watching the

television, for example the same event that patrons are attending, may be presented with the same and/or different questions as well as an address and/or telephone number to call and provide their answer which they can compete with patrons at the event or can be used to provide a separate comparison of the answers and/or separate winners to the contest. In this embodiment, for example, questions may be displayed on the television, Internet website, and the like, during the event, and viewers watching the television may respond to the questions as described above. The system can optionally compare the percentage of correct answers between the television viewers and the patrons at the event, and/or provide separate awards or a single award to the winners from the pool of television/Internet viewers and/or patrons in the event.

As discussed above, one or more of the above alternative embodiments may be incorporated into the embodiments described above, and/or any of the embodiments discussed below. Furthermore, any of the embodiments of the present invention may be used for any reserved seating event.

FIG. 25 is a flowchart of a third embodiment of the invention. In FIG. 25, the process begins as all tickets are checked in, for example, as the patrons enter the reserved seating area, such as a stadium or theater, through, for example, bar code readers, scanners, infrared readers, and/or manually or other method where the patron is checked in, either at the gate, seat or other location. For example, patrons can 5 optionally check in a predetermined time before the event through a wireless device, Internet connection, manual or voice recognition telephone, or other manner. The important point is to provide a standard manner for allowing patrons to 10 check in, and if the patron fails to check in using a predetermined procedure, to allow that seat to be provided to another willing patron in accordance with a process to be described below. Currently, such a process is impossible and 15 unthinkable in view of the difficulty reserved seating events have in simply getting the patrons seated prior to the beginning of the event. The present invention represents a revolutionary process to enhance event enjoyment, earn patron 20 loyalty and optionally provide additional revenues 25

to the theater/stadium or optionally other patrons with the desirable ticket.

The seat re-allocation process is used to
5 re-assign seats for patrons that are willing or interested in different or better seats. Such re-allocation processes or algorithms may include a random process, a process where priority patrons are given priority for re-assignment of seat, a
10 process where patrons are willing to pay additional for the re-assignment to either the theater or the individual patron whose seat is being provided to another patron, frequent event patrons, season ticket patrons, or other
15 predetermined process. Simultaneously or subsequently, the check in procedure continues for a predetermined period of time until a predetermined time period has expired, for example, 5 minutes before the event begins, 10
20 minutes after the event begins, after a predetermined event, such as the second act of a play, and the like. Once the predetermined time period or event has been completed, the check in procedure may be considered completed to begin the
25 seat re-allocation process.

If the patron that is identified by the re-allocation process is determined to be present in the theater, for example, via mobile telephone, wireless device, and/or manual verification, an optional sub-process determines whether the patron's optional profile is also satisfied with the available seating. If the optional subscriber profile is not satisfied, then the re-allocation process searches for another possible patron. If the optional profile sub-process is satisfied, then the eligible patron is notified via one or more means, such as announcement, manually, wireless device, mobile telephone, bulletin board, and/or other means. The patron is then notified and presented with the option of moving for free, use of award points, additional money to the theater and/or patron to whose seat is being provided, or other predetermined criteria to obtain the seat. The patron, of course has the option to decline, and if so, the process continues and returns to the re-allocation process to attempt to locate another possible patron.

If the patron accepts, payment of money or other means may be effectuated on the spot via the wireless device, credit card, debit card, points, and the like, and the patron may now move to the
5 other seat. The patron's seat may then optionally be made available as an empty seat to the re-allocation process. If a predetermined period of time has not expired, then the re-allocation process may be run again to optionally
10 continuously re-allocate seats. The patron may optionally store the up-graded ticket on a wireless device for proof of entrance to the better seating area. Optionally, the seat and/or row and/or section, includes a separate reader
15 device to receive optionally the original ticket that is now re-allocated to a better seat, or a new ticket that may optionally be received by the patron via the wireless device and/or manually via a worker in the theater or stadium.

20

In accordance with the invention, as indicated above, when the patron registers for ticket re-allocation and/or purchase, via for example the Internet, the patron may enter payment information at that time. Accordingly, when the
25

patron accepts the ticket re-allocation and/or purchase, the system can automatically charge the patron without the patron actually submitting/typing, for example, credit card information over a wireless device. The tickets of the present invention may be used to re-allocate patrons that are sitting in the stadium and/or patrons that may be in the vicinity of the stadium but were unable to get seats. Since the present invention re-allocates and/or sells tickets very near to game time in accordance with one embodiment, the patron must be in the general vicinity of the stadium to take advantage of this embodiment of the invention.

15

As described above, the patron may be transmitted, for example, emailed, the actual ticket or a confirmation number that they can use proceed to their seat and/or re-allocated seat. An optional graphical display via, for example, GPS, as discussed above may be used to guide the patron to the new location upon acceptance, as well as to help the patron decide whether to purchase the ticket and/or upgrade. For example, a graphical map of the stadium and/or textual description may

25

be provided to the patron to help the patron decide the quality of the upgrade and whether to accept.

In one alternative embodiment, if the
5 patron that has their ticket re-allocated in error, e.g., because the patron did not show up to the event based on the predetermined criteria but the patron was still planning on attending because they forgot about their seat being re-allocated,
10 the system can re-allocate seats immediately upon the checking in of the patron and notify them that their seats have changed because they are late. In this situation, the stadium/venue might decide to further upgrade the patrons because of the
15 mistake.

In accordance with one embodiment of the present invention, the process of the present invention specifically reserves seats of the
20 highest or very high rating that are considered preferred, in the event a patron's seat is re-allocated prematurely or erroneously. In this situation, the patron who has had their seat re-allocated because they will likely receive an even

better seat as a result of the mistaken (stadium or patron) or premature seat re-allocation.

In another embodiment of the present
5 invention, as patrons are entering the venue or stadium, they are provided advantageously with a map of the stadium so patrons can analyze the potential upgrade to make a decision whether the upgraded seats are sufficiently good or of value
10 to warrant the patron moving and/or paying for the additional upgrade. By handing the patron the map of the stadium, the process of the the present invention is not required to transmit a detailed schematic to the patron's wireless device which
15 would not normally be able to effectively permit the patron to evaluate the proposed upgrade seats. The map that is handed out may optionally include information for patrons on where to register for the upgrade and/or additional advertisement
20 opportunities.

In one alternative embodiment, the patron that has purchased the ticket, for example, a season ticket holder, may advise the stadium that

for a particular game, set of games or all games, they do not want their seats to be re-allocated, and perhaps, an additional fee is assessed for this type of patron. If the stadium provides the 5 ability for the patron to selectively opt out of the seat re-allocation, the patron can, for example, connect to the system via the Internet, public switched telephone network, cellular network, and the like, and notify the system that 10 they do not want their ticket re-allocated, for example, because they are coming late to the event. Other means of notifying the system and/or other reasons may be utilized in connection with the present invention.

15

In another alternative embodiment, the system provides patrons the ability to individually select when their tickets may be re-allocated. For example, one patron may prefer to 20 only give up their ticket if they are late to the game by 15 minutes, while another patron may be willing to give up their ticket if they have not arrived 15 minutes before the game. In alternative embodiments, the stadium may provide incentives 25 for the patron to have their ticket re-allocated

prior to the game because it increases the stadium's chances of re-allocating/re-selling the ticket.

5 The present invention has particular benefits for stadiums that are constantly sold out, but where patrons habitually do not show up. For example, many stadiums are sold out by season ticket holders that do not show up to the game on
10 a regular basis. The present invention permits these tickets to be re-allocated in accordance with, for example, predetermined algorithms, and provide additional patrons a better experience. In addition, the present invention has the benefit of
15 moving the patrons closer to the action/players, and therefore, the ability to support and/or motivate the players to play well. In additional alternative embodiments, the stadium may provide the original ticket holder a portion of the
20 proceeds as a result of the ticket re-allocation, thereby providing additional incentive to the ticket holder to permit their ticket to be re-allocated (when this is a voluntary program in the stadium). The stadium may then keep a percentage,
25 portion or service fee from the resale and/or re-

allocation of the ticket. Of course, the above embodiment may further apply to yet another embodiment where the stadium does not offer the upgrade to patrons sitting in the stadium, but to
5 patrons that, for example, may be in the geographic vicinity of the game but that may not currently have any tickets or that may be willing to purchase the tickets when availability is determined and to travel to the event.

10

In an alternative embodiment, the system determines priority of re-allocation of seats based first upon patrons that have seats that may also be re-allocated. That is, the systems
15 attempts to maximize the number of re-allocations by prioritizing the re-allocation based upon seats that may be re-allocated after already being re-allocated. For example, if front row seats in a stadium are available to be re-allocated, in this
20 alternative embodiment, patrons that are in the next closest section for example on the field level would be upgraded first to those seats. Then, patrons with less preferred seats, for example, in the upper deck would be re-allocated
25 to the seats that have now become available from

the patrons that have been upgraded to the front row. Thus, using this alternative priority scheme, the present invention maximizes the re-allocation numbers. Of course, this priority algorithm may be
5 combined with additional factors, for example, relating to subscriber/patron value. As described above, additional factors may be utilized in the algorithm to determine the subscriber or set of subscribers to offer the upgrade.

10 In alternative embodiments, patrons in the vicinity of the upgraded and re-allocated patrons may optionally rate the upgraded patron, for example, for appropriate behavior, wearing of excessively large hats, drunkenness behavior, and
15 the like. These ratings may then be taken into account in the re-allocation algorithm for future upgrades to the patron.

20 In alternative embodiments, the patrons eligible for the upgrade may be notified using standard email communications over a wireless device, mobile telephone, and/or other standard communication means. For example, standard text-to-voice and/or voice-to-text communications may
25 be used to contact the patron to evaluate whether

an upgrade will be accepted and to actually accept
the upgrade.

In another embodiment of the invention, as
5 indicated above, when the patron registers for
ticket re-allocation and/or purchase, via for
example the Internet, the patron may enter payment
information at that time. Accordingly, when the
patron accepts the ticket re-allocation and/or
10 purchase, the system can automatically charge the
patron without the patron actually
submitting/typing, for example, credit card
information over a wireless device. The tickets of
the present invention may be used to re-allocate
15 patrons that are sitting in the stadium and/or
patrons that have already purchased tickets in the
vicinity of the stadium but were unable to get
seats and/or may be in the vicinity of the stadium
but were unable to get seats. Since the present
20 invention re-allocates and/or sells tickets at any
time prior to and/or after beginning of game time
in accordance with one embodiment, the patron may
be in the general vicinity of the stadium to take
advantage of this embodiment of the invention or
25 even at any location when being offered upgrades

and/or seats well in advance of the game. For example, the present invention can upgrade or sell tickets to patrons well in advance of the game since it advantageously is permitted or has the
5 authority to resell tickets either via ticket holders that do not show up during the game and/or, for example, season ticket holders that have authorized the stadium in advance to resell their tickets based on predetermined criteria, for
10 example, when the season ticket holder notifies the stadium that they will not be present at next weeks game.

In one optional embodiment of the
15 invention, the patron presents the usher with the confirmation number which the usher can enter into a wireless device using a local or private wireless network, or can simply use a walkie talkie or telephone to call the dispatcher to
20 confirm the upgrade and/or new seats using the customer provided confirmation number. The dispatcher will have access to the system to enter the confirmation number to confirm the validity of the upgrade. Alternatively, a patron will retain
25 their old ticket. The patron will give in the old

ticket to the usher which is scanned or barcoded by the usher for immediate identification of new seats and used in place of, or in addition to, confirmation number.

5

Of course, the confirmation may optionally be made via customer name with an appropriate identification card or other information. Further, alternative methods may be used to verify
10 that the confirmation number and/or ticket being used by the patron is valid. For example, the patron may be equipped with a printing device associated with the wireless device or download an actual ticket on line from home prior to the game
15 for the new ticket or upgrade. Alternatively, the patron may be equipped with an identifier card, optionally including a bar code with a unique identifier relating to the patron's account information and profile that can be scanned for
20 additional convenience. Alternatively, a wireless device may be used to securely store this type of identification and/or account information.

In at least one alternative embodiment of the invention, the patron may comprise optionally a corporate account that has a number of tickets, for example, season tickets. In this embodiment, 5 the corporate account may have associated therewith a plurality of email addresses or other communication addresses to transmit the seat or upgrade offer to a number of potential patrons that may rotate their attendance at the games. In 10 accordance with this optional embodiment, multiple emails can be stored for a single user/corporate account, and the system may transmit individual messages to all email addresses, or may only transmit messages to individual patrons for 15 corporate account that individually advise the system that they are associated with a particular ticket/bar code for a particular game and will be/are present at a particular game.

In an alternative embodiment, patrons may 20 enter the stadium and subsequently inform the system that they are present and interested in an upgrade via a kiosk where the patron can scan a bar code and enter their customer number to be eligible for upgrades during the game. The system 25 is then able to transmit a message to the customer, assuming that the customer has pre-

registered with the system with the appropriate contact information. Alternatively, or in addition to individual use of a kiosk(s), the customer sales office may have a kiosk or additional 5 functionality to enter the customer name and/or customer account and scan in the bar coded ticket on the spot to register each patron as they enter the stadium or venue.

10 As described above, the patron may be transmitted, for example, emailed, the actual ticket or a confirmation number that they can use proceed to their seat and/or re-allocated seat. An optional graphical display via, for example, GPS, 15 as discussed above may be used to guide the patron to the new location upon acceptance, as well as to help the patron decide whether to purchase the ticket and/or upgrade. For example, a graphical map of the stadium and/or textual description may 20 be provided to the patron upon entry in the stadium to help the patron decide the quality of the upgrade and whether to accept when an offer is received by the patron at a predetermined time. The graphical map may comprise a small booklet

with a map of the stadium showing seat locations, and optionally a game schedule.

The present invention has particular
5 benefits for stadiums that are constantly sold
out, but where patrons habitually do not show up.
For example, many stadiums are sold out by season
ticket holders that do not show up to the game on
a regular basis. The present invention permits
10 these tickets to be re-allocated in accordance
with, for example, predetermined algorithms, and
provides additional patrons a better experience.
In addition, the present invention has the benefit
of moving the patrons closer to the
15 action/players, and therefore, the ability to
support and/or motivate the players to play well.
In additional alternative embodiments, the stadium
may provide the original ticket holder a portion
of the proceeds as a result of the ticket re-
20 allocation, thereby providing additional incentive
to the ticket holder to permit their ticket to be
re-allocated (when this is a voluntary program in
the stadium). The stadium may then keep a
percentage, portion or service fee from the resale
and/or re-allocation of the ticket. Of course, the
25

above embodiment may further apply to yet another embodiment where the stadium does not offer the upgrade to patrons sitting in the stadium, but to patrons that, for example, may be in the
5 geographic vicinity of the game but that may not currently have any tickets or that may be willing to purchase the tickets when availability is determined and to travel to the event.

10 In alternative embodiments, patrons in the vicinity of the upgraded and re-allocated patrons may optionally be eligible for a dating or matching service where patrons register and provide profile information to the system and/or
15 through a third service provider dating service. Once the system knows that the patrons will be coming to the game and/or have actually checked in to the stadium, the system can then arrange for the two, four, etc. patrons to meet each other by
20 allocating and/or re-allocating seats to the patrons together. Thus, based on profile information, customer request and availability, the system is able to upgrade or sell tickets to patrons to maximize their chances of meeting
25 someone at the game. This optional feature

provides significant potential enjoyment for the patrons participating in this dating or connection program. In accordance with this embodiment, one possible sequence of acceptance steps involves

5 profile matching the two patrons (or groups of patrons) based on predetermined profile information; transmitting a first message to the first patron regarding availability of the second patron and requesting a conditional acceptance

10 form the first patron; transmitting a second message to the second patron indicating that the first patron has conditionally accepted and request the second patron to accept; and when the second patron accepts before the first patron has

15 rescinded the conditional acceptance, finalizing the upgrade and/or seat allocation for the first and second patrons. This embodiment of the invention is a complete reverse from typical dating and/or matchmaking services which attempt

20 to develop detailed algorithms for the matching process because of the significant decision that exists in determining who to spend valuable time with. In accordance with the invention, patrons are already present at the game, and therefore,

25 half or more than half the effort is already done. The remainder is to actually meet the other person

which can be accomplished with profile criteria, whether or not the algorithms are very sophisticated.

5 In one embodiment, the patrons that are being matched have their original seats maintained and not made available for other upgrades in the event the matching does not work out early on. In this embodiment, one or both the patrons can
10 return to their original seat. Hopefully, there will not be a significant argument of who would need to return to their original seat if an upgrade is actually performed. In addition, in accordance with this embodiment, the seats that
15 are selected do not necessarily have to be better seats in the classical sense. That is, seats further away from other ticket holders might be considered preferred when matching two individuals for the first time. Alternatively, couple that
20 would prefer a little more privacy or quieter game might request to be moved to a more isolated area. Alternatively, families with small children might prefer to be moved to a less busy area as well during the game where the children might be able
25 to freely move around. All these scenarios and/or

alternatives are possible in view of the present invention. The advantage of performing a match in a public setting is that the patrons do not have to worry about leaving or ending the date, and
5 also do not have to worry that the other person will have their home address.

In an alternative embodiment of the dating/matching service of the present invention,
10 a dating/matching service is provided to patrons that enter a predetermined location and/or geographic area. The patron can enter physically the location and/or geographic and register, for example, by manually entering data in a computer,
15 transmitting information relating to the registration of the patron via infrared, Bluetooth and/or other technology, and/or automatically register via use of GPS information associated with or used in a wireless device associated with
20 the patron. For example, patrons that enter an establishment can register upon entry that they are now present within the general location of the establishment. Upon registry, the system can implement various matching algorithms currently in
25 use by various matching services in connection

with other patrons that have also registered at the same location and/or a location in the general area that the original patron registered.

According to this embodiment, the system

5 advantageously matches individuals that have registered in the same geographic location and/or geographic locations that are in the same general area where the patrons can walk and/or drive to meet each other in the same general time frame,
10 such as the same evening, same afternoon same day, and the like.

In addition, this feature also optionally permits the patrons that have participated in the
15 program to rate one another for future dates. For example, one patron can rate the conversational benefits of the second patron, the appearance of the second patron, the overall short term versus long terms relationship goals of the patron, and
20 the like. These ratings may then be taken into account in the algorithm for future seat assignments, re-allocations and/or upgrades in the future for the first and second patrons, and all other patrons will now benefit with the additional
25 profile information of the first and second

patrons. The matching service may be for amusement or work related networking purposes, for example, to meet an executive that the patron currently works with or wishes to work with/sell in the
5 future.

In an alternative embodiment of the dating/matching service of the present invention, a dating/matching service is provided to patrons
10 that enter a predetermined location and/or geographic area. The patron can enter physically the location and/or geographic and register, for example, by manually entering data in a computer, transmitting information relating to the
15 registration of the patron via infrared, Bluetooth and/or other technology, and/or automatically register via use of GPS information associated with or used in a wireless device associated with the patron. For example, patrons that enter an
20 establishment can register upon entry that they are now present within the general location of the establishment. Upon registry, the system can implement various matching algorithms currently in use by various matching services in connection
25 with other patrons that have also registered at

the same location and/or a location in the general area that the original patron registered.

According to this embodiment, the system advantageously matches individuals that have registered in the same geographic location and/or geographic locations that are in the same general area where the patrons can walk and/or drive to meet each other in the same general time frame, such as the same evening, same afternoon same day, and the like. In addition, the system advantageously and optionally provides the feature of allowing patrons to text message one another directly, and/or exchange pictures via wireless email, text messaging, and other wireless devices that provide the standard capability of exchanging pictures, such as T Mobile and/or Sprint.

In alternative embodiments, the ticket holder can call in via a voice to text message, text message and/or email and let the stadium know early that they are not coming. In this manner the ticket holder obtains the convenience of the stadium or venue reselling their tickets in advance, thereby providing the venue with

additional time to maximize the resale of the ticket.

- In alternative embodiments, when the
5 patron enters the stadium, they have their ticket
barcoded or other device that detects their
presence can be used such as infrared, Bluetooth,
etc., and then they can become eligible for an
upgrade. The patron can register in advance that
10 they want to receive upgrades by providing their
name, message address, e.g., email, telephone text
message address, etc., and optionally their credit
card or other payment mechanism for upgrades that
actually cost money as opposed to free upgrades.
15 In alternative embodiments, the patron can
register at the ticket booth when purchasing their
original ticket. In this scenario, the stadium
representative can enter this information on
behalf of, and with the permission of, the patron
20 since the patron may already be providing their
credit card, debit card, etc. to purchase the
original tickets. Alternatively or in addition, a
kiosk may be provided where the patron can enter
their original ticket, e.g., scan in their
25 original ticket and provide their name and text

message information in the stadium to register for a one time upgrade for the game after purchasing, for example, a regular admission ticket.

5 In alternative embodiments, an usher can verify that the patron should be upgraded by the patron providing the confirmation number that may be transmitted in real-time by the system, and/or by the patron using their original confirmation
10 number or original ticket with barcode or other identification means, such as a smart card, infrared reader, etc. that represents original ticket and presenting same to the user. The usher then needs only to scan in the original ticket and
15 the system will verify whether the patron associated with the original ticket is valid and whether the upgrade is valid.

20 In alternative embodiments, a warning message may be sent to the ticket holder that has not shown up to game warning them that if they do not respond within a certain time period that their seat will be re-allocated or re-assigned to another patron. Similarly, a release message may

be sent to the ticket holder after their seat has actually been released and/or re-allocated, thereby notifying the patron that if they change their mind in attending the game, they will have 5 to obtain an additional ticket. In alternative embodiments, the ticket holder that has their seat released and re-allocated can be themselves re-allocated a similar, worse or better seat, depending on, for example, their subscriber value 10 and/or other criteria. For example, if the patron is provided a better seat, this will encourage them to more readily give up their seats in the future even if they are attending the game. On the other hand, if the patron is provided a worse 15 seat, then this encourages them not to artificially give up or have their seat released when attending the game. Accordingly, the present invention is designed to deal with various behavioral patterns of specific ticket holders, 20 and may optionally and advantageously be a ticket holder specific with respect to various criteria for re-assigning, releasing, selling and/or re-allocating tickets.

In alternative embodiments, the system transmits to the ticket holder a welcome message after being upgraded and after having been moved to a new upgraded seat location. In one 5 embodiment, the system identifies that the patron has been successfully upgraded after the patron provides the usher with a confirmation number or original ticket, which is then verified by the usher and system.

10

In alternative embodiments, the system, after having identified which patrons have checked into the stadium and/or have been upgraded, transmits a trivia question and/or additional 15 advertisements to all patrons attending the game. In alternative embodiments, the information is transmitted to both patrons that are attending the game and additional patrons that have registered in the past to receive information but that are 20 not attending the game. The participants can, for example, answer trivia questions and respond with their wireless device. Depending on whether the patron is attending the game or not, the system may determine to offer or deal with each of the 25 patrons differently. For example, for patrons at

the game, winners may be successively determined and narrowed, as patrons successfully and unsuccessfully answer questions, round after round of questions in a "spelling bee" format. For
5 patrons that are not attending the game, winners may be declared, or statistics provided to the broadcast station that can be aired on television. In yet additional alternative embodiments, instead of transmitting information/questions to the
10 patrons via the wireless device, the information/questions are displayed on the stadium billboard for patrons at the game and/or on television for patrons that are watching the game on television. The patron can then merely respond via the device, e.g., the telephone accordingly
15 via a voice-to-text system or via other mobile devices via text messaging.

In alternative embodiments, the
20 present invention provides the advantage of additional advertising sponsorship to the venue. For example, in one embodiment, the venue is partitioned into different locations that may be assigned to different sponsors. In one embodiment,
25 the sponsor that provides the most value may be

assigned a certain number of premium seats that are not available to other sponsors.

For example, the sponsor may offer a
5 discount on the upgrade if you are a Verizon or
Verizon Wireless customer or they credit your cell
account for each seat upgrade or you get say 30
free minutes, etc. In alternative embodiments, the
present invention provides the advantage of one
10 wireless provider to advertise on another wireless
providers mobile phone or wireless device. For
example, if Verizon Wireless is a sponsor of the
upgrade system for a particular stadium, the
present invention will still work with, for
15 example, AT&T, SPRINT, and CINGULAR customers. An
advertisement message sent with the upgrade offer
may read on the AT&T phone, "brought to you by
Verizon Wireless." In an alternative embodiment of
the present invention, text messaging is
20 optionally used for mobile phones to perform the
message communication of the present invention.
The user is only required, in one embodiment, to
reply or respond with a "Yes" to accept the
upgrade offer since the user has advantageously
25 pre-registered with the system, thereby minimizing
the required communication/input by the user. In

an alternative embodiment, the user, instead of pre-registering with the system, is charged on their wireless or even regular telephone number bill when they accept the upgrade offer. Thus, the
5 wireless system that either administers the user's regular or wireless account or the upgrade sponsor may be responsible for actually billing the customer in this alternative embodiment.

10 In the alternative embodiment when text messaging is optionally used alone or in combination with other communication methods, the system provides the additional advantage of maximizing bandwidth usage by not requiring use of
15 bandwidth on the wireless voice system, thereby maximizing system resources.

20 In another alternative embodiment, the present invention optionally and advantageously provides a security and/or safety feature in the event of, for example, a minor event where a parent gets separated from a child, a disaster or other event that might require evacuation of the stadium. In one embodiment, the
25 person needing help provides their name to an attendant that can search the system for the

contact information of their companion/parent. The system can thereafter send an email and/or text message to the companion/parent regarding the status of that person and provide instructions for meeting that person or arranging help, authorizing medical procedures, and the like. In another embodiment, the person requiring help, e.g., a child provides the attendant or kiosk with their ticket which can, e.g., scan the bar code or other reader system. The system can either automatically provide a text message to the parent who can then reply to the child/attendant via the kiosk to meet the child.

15 Alternatively, the parent can be instructed to meet the child at a predetermined location, and to stop looking for the child because the child was found. Thus, for this example, the person who is lost or separated from
20 their party can notify security or access a kiosk. Security can, for example, notify the parent that child is in safe custody, and should not search the stadium, and therefore, meet outside stadium in a pre-specified safe place.

In an alternative embodiment, if a child/person is separated, the security guard/kiosk can arrange the best place to meet, either in or outside the stadium, together based on an optional global positioning system (GPS). In addition, the party with the mobile device can be provided directions on where to go to meet their party from who they have been separated.

10 In an alternative embodiment, the present invention may also be used in a security, defense and/or safety setting to direct patrons in a stadium for an orderly evacuation or notify patrons regarding status of a safety related event

15 15 via, for example, a broadcast message including text message, email and the like. In this manner, system communication resources may be most efficiently utilized by not over-utilizing the system via voice communication, unless completely

20 20 necessary. For example, the message can be broadcast in the event of an impending hurricane. In this situation, patrons in different sections get different messages, for example, to exit the stadium out of gates/exits that are either less occupied or closest to the section the patrons are sitting in. Advantageously, the present invention

has the patrons contact information, including
optionally and advantageously text messaging, that
can be broadcast or sent to different patrons. The
advantage of text messaging is that the bandwidth
5 is more efficiently used in the event of an
emergency, and there are no busy signals as in a
voice network. Further, the message is send, and
if the network is at capacity, the system can
automatically resend or the message will be placed
10 in queue and sent as soon as capacity becomes
available.

In another alternative embodiment of
the invention, the security bracelets of the
15 present invention can be required to be displayed
and read on exit from a venue when a parent has
reported that a child has been separated. In this
event, all patrons are checked when they exit the
stadium. The parent can report the specific seat
that the child was sitting in, and then on exit,
20 all patrons are checked. If the specific seat
appears or if a child attempts to leave without
scanning or presenting their bracelet, then that
child can be taken into custody until their parent
arrives, thereby possibly preventing abduction.
25

For instance, in sporting venues the bracelet ticket includes the machine readable information that comprises at least one of a bar code and radio frequency identifier used for security check in, and optionally check out. In this manner, the standard reading machines that can scan the bar code or RFID information can keep track of people that have checked into the sporting event and/or venue. Advantageously, the machine readable information on the bracelet can also be used by the venue in the event the patrons seat assignment is modified, for example, via an electronic ticket exchange or upgrade program. In this embodiment, the visible indicia are no longer valid for the actual seating that may be dynamically changed and only represents optionally an initial seat assignment. However, the machine readable information may be used as a code to reference the specific patron and assign that patron a new seat. Thus, when the ticket reader scans the ticket and actually identifies, for example, the bar code, this information can be used to reference the patron, update and/or confirm the patron's current seat via the reader used, for example, by ushers in the venue, kiosk, entrance to the venue, and the like.

In an alternative embodiment, the security bracelets of the present invention can be required to be displayed and read on exit from a venue when
5 a parent has reported that a child has been separated. In this event, all patrons are checked when they exit the stadium. The parent can report the specific seat that the child was sitting in, and then on exit, all patrons are checked. If the
10 specific seat appears or if a child attempts to leave without scanning or presenting their bracelet, then that child can be taken into custody until their parent arrives, thereby possibly preventing abduction. This information,
15 as previously mentioned, may be visually cognizable for the patron and in combination, readable by electronic means if the bracelet includes a magnetic strip, bar code imprinting, or RF chip.

20

In an alternative embodiment of the present invention, the security bracelet and ticket combination of the present invention advantageously includes a bar code or other
25 machine readable information such as a RFID device. When, for example, a child is separated

form their parent, the parent can notify security and the seat number associated with the child. If the child attempts to leave with their bar code/identifier, the system detects the bar code/identifier as either being valid and identifying the child that is missing or being invalid and raising another red flag. In an alternative embodiment, the bar codes/identifiers associated between children and adults correspond such that the child identifier must be within a predetermined time and/or number of checking out identifiers from/within the adult identifier. If this does not occur, the system determines that the child is leaving without their parent, and possibly being abducted.

In an alternative embodiment, the system links one or more tickets/identifiers together and requires the tickets/identifiers to exit the venue or event within a predetermined time period from one another and/or within a predetermined number of tickets/identifiers that have exited the venue and/or event. In the event that one ticket/identifier exits the venue or event and the associated identifier does not, then an alarm or

other indictor occurs, and the attendants will detain the patrons that have initiated the alarm to for security purposes.

5 In an alternative embodiment, the tickets are advantageously coded with designations such as adult, child and the like. In the event a child ticket/identifier exits the stadium before the associated adult and/or more than a predetermined time period and/or number of patrons exiting, the system can initiate an alarm so that an attendant can determine if a child has exited the venue or event without their parent or with a wrong parent potentially averting a kidnapping. In this

10 embodiment, an additional combination is the use of the standard fast pass feature, for example, at theme parks, and the like, where the venue records predetermined events that the user of the card enters in a faster line. In this embodiment, if a

15 child ticket/identifier is not associated with a parent ticket/identifier, for example, as described above, the child may be denied entry into the event or venue if not accompanied by their parent. In alternative embodiments, the

20 venue/event sponsor or organizer associates

25

5 tickets upon request from the patron. In addition, in another alternative embodiment, a kiosk is provided inside and/or outside the venue for, for example, parents to register their tickets and have them associated with their children's tickets to prevent the child from exiting the venue without them, for example, as described above.

10 In an alternative embodiment of the present invention, the system and method are adapted to utilize any type of wireless device with different interface and communication options. For example, different wireless devices have different constraints with respect to the interface, e.g., 15 number of characters, how the subject and body of the messages are used/communicated, etc. Accordingly, the present invention optionally provides a protocol conversion system depending on the type of wireless device and the wireless 20 device constraints, including message constraints and/or the wireless communication system. In alternative embodiments, the system determines the wireless device provider based on the address received from the wireless device, and is able to 25 automatically determine the type of message and/or

message constraints and transmission constraints associated therewith based for example, on real-time information or on pre-determined stored information on the device and/or communication system. Accordingly, a protocol conversion system for different wireless devices is provided by the present invention for sending and/or receiving messages, such as upgrade offers, responses, acceptances, and the like, from a variety of different users/mobile devices and wireless systems.

In another alternative embodiment of the present invention, a security bracelet is advantageously utilized, for example, such as the security bracelet disclosed in U.S. application number 10/680,207, filed on October 8, 2003, to Abraham I. Reifer, et al., and incorporated herein by reference, in the event of a reported event, security breach, abduction, and the like. In this embodiment, all patrons exiting the stadium must show their ticket and/or identifier so that the venue can check all patrons out of the stadium. Thus, for example, if two kidnappers come in the stadium, and want to use one bracelet for a child, the second kidnapper will be stranded in the stadium. In addition, if one kidnapper buys two

tickets, then upon exit with the child and the additional ticket, a barcode/identifier will be exiting without ever having checked in, and then the alarm will go off as well.

5

In another alternative embodiment, the present invention provides a broadcast message to warn patrons of an event, such as an advertisement, sale and/or even a weather related event such as a hurricane that might require the venue to be evacuated. Advantageously, in at least one embodiment, the broadcast message comprises standard text messaging that optimizes or better utilizes capacity from the communication system.

10 Thus, when using text messaging capabilities, the present invention efficiently transmits text messages to numerous subscribers regarding, for example, exit information, contacting and/or meeting additional parties that have been separated, and the like.

15

20

In an alternative embodiment of the present invention, the present invention optionally provides the capability to penetrate 25 into secondary market with season ticket holders selling ahead of time the games they will not be

attending. For example, the present invention optionally provides the feature for the season ticket holder and/or general ticket purchaser the ability to view in advance of the season and/or game the schedule, and to alert the venue and/or stadium of games and/or events they will not be attending, thereby permitting the stadium/venue to attempt to resell the tickets to other patrons.

For example, in one embodiment of the invention, the patron is provided with a monthly schedule listing the events that may be attended. The patron, such as a season ticket holder, may then click or place an indicator on all games they will not be attending for the season in advance, thereby providing the stadium with the ability to resell tickets well in advance of the event. Once the patron completes identifying games that will not be attended, the system then compiles a list and transmits the list to the patron for an optional confirmation. This list is then used by the system to release seats well in advance of the game. In an alternative embodiment of the invention, registered users of the system for, for example, upgrades, may also be notified of seat availability for sales prior to the game/event. In an alternative of this embodiment, registered

users may receive text messages, emails, and the like, notifying them advantageously of the availability of seats that heretofore have never been easily available to the public for sale,
5 thereby allowing the venue to participate in secondary market ticket sales.

In one alternative embodiment of the present invention, the system/process of the
10 present invention provides or operates as a middle person/broker between the ticket holder that is returning tickets to the venue, such as the season ticket holder, and a ticket sales system and/or company, such as tickets.com, by notifying the
15 tickets company of the newly available seats via notification by the ticket holder, such as the season ticket holder of season ticket games not being attended.

20 In one alternative embodiment of the invention, the system and/or process transmits text messages, emails and the like, to offer tickets and/or seats and/or admittance to subscribers for events and/or games with empty
25 seats even before game. Thus, the present invention allows the venue to participate in the

secondary ticket sales market and the upgrade market, thereby increasing revenue and fan loyalty.

5 Of course, all of the embodiments of the present invention may be used for any reserved seating event, and/or venue that require tickets for entry thereof.

10 In another alternative embodiment of the present invention, the use of machine readable identifiers provides advantages for, for example, the upgrade program or ticket exchange of the present invention. For example, when the upgrade, 15 re-allocation and/or electronic ticket is issued, the machine readable identifier, for example, the bar code, on the original ticket is invalidated, thereby preventing use of the invalidated ticket. Accordingly, when a new ticket holder purchases 20 the ticket form the season ticket holder, the new purchaser will be issued a new machine readable identifier, and optionally a new paper ticket. The present invention advantageously is able to handle the issuance of a new ticket and invalidates the 25 old ticket and optionally the old identifier that has, for example, been returned by the season

ticket holder, thereby providing dynamic ticketing capability.

In an alternative embodiment of the present invention, the new patron obtains a new identifier such as a barcode, the old bar code of, for example, the season ticket holder is invalidated. In one embodiment of the invention, season ticket holders are offered to opt in the upgrade process. Various commercial incentives are possible for the season ticket holder to opt in the upgrade process, such as monetary compensation when their ticket is used for an upgrade and/or resold whether they express their intention not to go to the game prior to the game, and the like. Alternatively, season ticket holders may be offered that the cost of their season tickets will, for example, remain the same as the previous year or be reduced if they participate in the program. Therefore, the combination season ticket trade-in and upgrade program in one embodiment of the invention will be beneficial to season ticket holders by allowing them to trade when they already know that they have no intention of attending a game, and allow the season ticket holder to recoup some cost of the season tickets

if they do not attend and their ticket is used as an upgrade. In addition, additional patrons of the event and/or sports team are permitted to attend the game in locations/seats that they might never
5 have been able to obtain access to. Further, the venue/stadium/team maximize revenues by being able to place tickets on the secondary market when the ticket holder notifies the venue early enough that they are not attending the event, the venue also
10 obtains additional revenue from upgrades when tickets are upgraded, and the venue obtains additional fan loyalty.

In another embodiment of the present
15 invention, the system provides the ability to advertise via email, text messaging, and the like, for one wireless carrier on the wireless device that is using another wireless carrier. Since the user of the wireless device has requested the
20 service, the user appropriately receives the communication from the ticketing system of the present invention, and therefore, also appropriately received the advertisement from the wireless carrier that is different than the wireless carrier that the user of the wireless may
25 be using at that time.

In another alternative embodiment of the present invention, offers to purchase seats either during the game or even well in advance of the game are "pushed" or transmitted out to registered users that have supplied their wireless and/or Internet addresses. For example, patrons can register in advance for the upgrade and/or regular ticket offers to purchase admittance via various methods including the Internet. When seats band/or admittance becomes available, a broadcast message or other standard messages may be transmitted to the registered patrons to notify them of the seat availability. Thus, seat offers are "pushed" to registered users that have requested this service advantageously to a wireless device and/or other address including standard telephone communication, as well as additional optional advertisements. The system, in one alternative embodiment, provides the user the option when registering to accept certain types of advertisements to be received on their wireless device via email and/or text messaging. In other embodiments, the user does not have the option of which advertisements to receive.

Advantageously, in accordance with one alternative embodiment of the present invention, if a patron decides to attend an event such as a sporting event when the patron does not have time to wait to receive paper tickets (e.g., the patron is visiting in another city/location and does not have time to wait to receive tickets via mail and is on the go), the system of the present invention transmits a ticket to the patron via, for example, a wireless communication system and/or other standard electronic communication system such as the Internet, and the patron can present their ticket, for example, on their wireless device and show up to game.

In another embodiment of the present invention, an interactive patron entertainment system is provided where trivia questions, for example multiple choice questions on a variety of topics, are sent to the patron via email and/or text messaging and/or displayed on the scoreboard with an address to respond, such as trivia@utixx.com. Patrons then text message and/or email and/or answer questions via voice-to-text messaging their answers. The system can then display the overall number of answers that are

correct and incorrect, display bar graphs and the like to the event patrons by displaying on a display, such as the scoreboard of a sporting event. The system then identifies the patrons that have correctly answered the question and can then send new questions to be answered just to the previously correct patrons, thereby further narrowing the group of patrons. Successive questions can be sent, including questions that are not multiple choice and that require actual text to be entered via standard wireless device interfaces, and patrons are successively eliminated until a single or sub-set of patrons are determined to be the winners. Advantageously, the present invention provides entertainment to the patrons at the event by optionally providing successive questions throughout an event. In another alternative embodiment, simultaneously with the questions to the patrons present at the event, the present invention is also capable of sending the questions to patrons that have registered with the system, but are not at the event, for example, at home watching on the television or simply not currently involved in the game. The present invention is able to transmit the same and/or different questions to those

registered users as well. Further, in another alternative embodiment of the present invention, viewers watching the television, for example the same event that patrons are attending, may be
5 presented with the same and/or different questions as well as an address and/or telephone number to call and provide their answer which they can compete with patrons at the event or can be used to provide a separate comparison of the answers
10 and/or separate winners to the contest. In this embodiment, for example, questions may be displayed on the television, Internet website, and the like, during the event, and viewers watching the television may respond to the questions as
15 described above. The system can optionally compare the percentage of correct answers between the television viewers and the patrons at the event, and/or provide separate awards or a single award to the winners from the pool of
20 television/Internet viewers and/or patrons in the event.

In another alternative embodiment of the present invention, the system uses a seat database
25 to determine which of the reserved seats are currently in use. The system may integrate with

the seat database system of a venue and/or stadium or optionally be used in parallel with the seat venue/stadium database. For example, prior to the event, the system may utilize the seat database of
5 the venue to determine available seating and patrons that do not show up after a predetermined period of time. Alternatively, the present invention can operate using a separate database from the event/venue by copying or building a
10 separate database used for the ticketing and/or upgrading according to the present invention. In this alternative, as patrons enter the venue, they are checked in directly to this separate database. At the time of the event, the system will be able
15 to check-in patrons using either the identification system, e.g., bar code scanner, of the event or venue, or provide a separate identification system.

20 In alternative embodiments of the invention, the patron that knows they are attending the game but is going to be late can send in a HOLD message even prior to being provided a warning message that their seats are to
25 be released if the patron does not respond to the message with the HOLD request. That is, in this

embodiment, since the patron already knows well in advance that they are attending the game, but perhaps stuck in traffic, the patron can initiate the HOLD message before even being warned in 5 advance of the possibility of their seat being released.

In another alternative embodiment, patrons 10 that have registered with the system and optionally checked into the stadium and/or venue in advance and who also know that they would like an upgrade and/or ticket, may initiate their own upgrade request to the system to notify the system of their willingness to purchase an upgrade and/or 15 new ticket for the event/venue. The system may then place these patrons on a higher priority since they have already expressed and intent and/or willingness to purchase the upgrade or ticket. The patron may notify the event and/or 20 stadium of their willingness optionally well in advance of the game or near/after game time at a time which the patron commits or expresses an additional heightened desire to upgrade and/or purchase a ticket.

In alternative embodiments, the system includes the advantage of allowing patrons to register free for a predetermined period of time, for example, for the first year, without paying a yearly subscriber fee. Alternatively and/or in addition thereto, the system provides the patron with their first upgrade for free or for a reduced rate to further encourage the patron to register with the system and method of the present invention. Alternatively and/or in addition thereto, the system of the present invention offers the patron reduced and/or free concessions when purchasing a membership, ticket and/or upgrade to further encourage the patron to participate in the offers of the present invention.

In alternative embodiments of the present invention, the matching system and/or process, permits participants in the program to initiate a message to the system with the seat location and/or name of the patron that they would like to be matched with for a meeting, networking and/or socializing such as a date. In this embodiment, the system may the push the message to the other

subscriber and assign new seats to the individuals
that are to be matched. Alternatively, the system
need not require a specific confirmation that the
second individual to be notified of the potential
5 match is physically located near the first
individual, but can rely on the first individual
to provide that information. For example, the
first individual may see a potential date in a
restaurant, and may then send a message to the
10 system with that person's name or address, that
they would like to meet that other individual. In
that situation, the second individual will receive
a message of the possible match, and can respond
and accept or reject the offer to meet. The second
15 individual can then provide a meeting destination
or the system can suggest a meeting place based on
the first individual advising the system of their
location, and the location of the second
individual.

20

In another embodiment of the present
invention, an interactive patron entertainment
system is provided where trivia questions, for
example multiple choice questions on a variety of
25 topics, are sent to the patron via email and/or
text messaging and/or displayed on the scoreboard

with an address to respond, such as
trivia@utixx.com. Advantageously, the multiple
choice questions each have unique selections, such
as a1, b1, c1 and d1 for question #1; a2, b2, c2,
5 and d2 for question #2; a3, b3, c3 and d3 for
question #3, and the like. In this embodiment,
the actual timing of questions is not necessary
since each question and answer is unique.
Therefore, the speed of responding to the question
10 is immaterial to the winner of the contest and/or
correct answer. Also, in the event one patron
answers the question late, there will be no
confusion which question the patron is submitting
an answer for. Patrons text message and/or email
15 and/or answer questions via voice-to-text
messaging their answers as indicated above using
the unique set of answers, in one embodiment. In
alternative embodiments, the first predetermined
number of patrons that answer the question
20 correctly are considered the winners.

The system can then display the overall
number of answers that are correct and incorrect,
e.g., a1 50%, b1 28%, c1 12% and d1 10%, and
25 display bar graphs and the like to the event
patrons by displaying on a display, such as the

scoreboard of a sporting event. The system then identifies the patrons that have correctly answered the question and can then send new questions to be answered just to the previously correct patrons, thereby further narrowing the group of patrons. Successive questions can be sent, including questions that are not multiple choice and that require actual text to be entered via standard wireless device interfaces, and patrons are successively eliminated until a single or sub-set of patrons are determined to be the winners. Advantageously, the present invention provides entertainment to the patrons at the event by optionally providing successive questions throughout an event. In another alternative embodiment, simultaneously with the questions to the patrons present at the event, the present invention is also capable of sending the questions to patrons that have registered with the system, but are not at the event, for example, at home watching on the television or simply not currently involved in the game. The present invention is able to transmit the same and/or different questions to those registered users as well. Further, in another alternative embodiment of the present invention, viewers watching the

television, for example the same event that
patrons are attending, may be presented with the
same and/or different questions as well as an
address and/or telephone number to call and
5 provide their answer which they can compete with
patrons at the event or can be used to provide a
separate comparison of the answers and/or separate
winners to the contest. In this embodiment, for
example, questions may be displayed on the
10 television, Internet website, and the like, during
the event, and viewers watching the television may
respond to the questions as described above. The
system can optionally compare the percentage of
correct answers between the television viewers and
15 the patrons at the event, and/or provide separate
awards or a single award to the winners from the
pool of television/Internet viewers and/or patrons
in the event.

20 As discussed above, one or more of the
above alternative embodiments may be incorporated
into the embodiments described above, and/or any
of the embodiments discussed below. Furthermore,
any of the embodiments of the present invention
25 may be used for any reserved seating event.

FIG. 26 is a flowchart of a fourth embodiment of the invention. In FIG. 26, the process begins as all tickets are checked in, for example, as the patrons enter the reserved seating area, such as a stadium or theater, through, for example, bar code readers, scanners, infrared readers, and/or manually or other method where the patron is checked in, either at the gate, seat or other location. For example, patrons can 5 optionally check in a predetermined time before the event through a wireless device, Internet connection, manual or voice recognition telephone, or other manner. The important point is to provide a standard manner for allowing patrons to 10 check in, and if the patron fails to check in using a predetermined procedure, to allow that seat to be provided to another willing patron in accordance with a process to be described below. Currently, such a process is impossible and 15 unthinkable in view of the difficulty reserved seating events have in simply getting the patrons seated prior to the beginning of the event. The present invention represents a revolutionary 20 process to enhance event enjoyment, earn patron loyalty and optionally provide additional revenues 25

the theater/stadium or optionally other patrons
have the desirable ticket.

The check in procedure continues for a determined period of time until a predetermined time period has expired, for example, 5 minutes before the event begins, 10 minutes after the event begins, after a predetermined event, such as the second act of a play, and the like. Once the determined time period or event has been completed, the check in procedure may be considered completed to begin the seat re-location process. To begin the seat re-location process, a re-allocation algorithm is used to re-assign seats for patrons that are leaving or interested in different or better seats. Such re-allocation processes or algorithms include a random process, a process where priority patrons are given priority for re-assignment of seat, a process where patrons are willing to pay additional for the re-assignment to either the theater or the individual patron whose seat is being provided to another patron, frequent patron patrons, season ticket patrons, or other determined process.

If the patron that is identified by the re-allocation process is determined to be present in the theater, for example, via mobile telephone, wireless device, and/or manual verification, an optional sub-process determines whether the patron's optional profile is also satisfied with the available seating. If the optional subscriber profile is not satisfied, then the re-allocation process searches for another possible patron. If the optional profile sub-process is satisfied, then the eligible patron is notified via one or more means, such as announcement, manually, wireless device, mobile telephone, bulletin board, and/or other means. The patron is then notified and presented with the option of moving for free, use of award points, additional money to the theater and/or patron to whose seat is being provided, or other predetermined criteria to obtain the seat. The patron, of course has the option to decline, and if so, the process continues and returns to the re-allocation process to attempt to locate another possible patron.

If no confirmation is received from the patron for a predetermined period of time, the re-allocation process continues to wait until the predetermined period of time has expired. Once 5 the predetermined period of time has expired and there is no response received from the patron provided with the option of changing their seat, the patron is cleared or removed from the eligible list, and the seat is considered or assigned empty 10 status for the re-allocation algorithm to be again implemented.

If the patron accepts and a confirmation is received, payment of money or other means may 15 be effectuated on the spot via the wireless device, credit card, debit card, points, and the like, and the patron may now move to the other seat. The patron's seat may then optionally be made available as an empty seat to the re-allocation process. If a predetermined period of 20 time has not expired, then the re-allocation process may be run again to optionally continuously re-allocate seats. The patron may optionally store the up-graded ticket on a 25 wireless device for proof of entrance to the

better seating area. Optionally, the seat and/or row and/or section, includes a separate reader device to receive optionally the original ticket that is now re-allocated to a better seat, or a new ticket that may optionally be received by the patron via the wireless device and/or manually via a worker in the theater or stadium.

10 Of course, the re-allocation algorithm
11 does not have to be run or implemented one patron
12 at a time, but may be run to re-allocate or re-
13 assign a plurality of patrons. If one patron or
14 higher priority patron does not accept, then the
15 next already generated patron may be queried to
16 determine whether the next patron desires the seat
17 re-allocation. Further, the system optionally
18 downloads instructions on how to get to the new
19 location, and can provide step-by-step
20 instructions using an optional standard global
21 positioning system (GPS) incorporated in, or as a
22 separate accessory to, the wireless device.

In accordance with the invention, as indicated above, when the patron registers for

ticket re-allocation and/or purchase, via for example the Internet, the patron may enter payment information at that time. Accordingly, when the patron accepts the ticket re-allocation and/or purchase, the system can automatically charge the patron without the patron actually submitting/typing, for example, credit card information over a wireless device. The tickets of the present invention may be used to re-allocate patrons that are sitting in the stadium and/or patrons that may be in the vicinity of the stadium but were unable to get seats. Since the present invention re-allocates and/or sells tickets very near to game time in accordance with one embodiment, the patron must be in the general vicinity of the stadium to take advantage of this embodiment of the invention.

As described above, the patron may be transmitted, for example, emailed, the actual ticket or a confirmation number that they can use proceed to their seat and/or re-allocated seat. An optional graphical display via, for example, GPS, as discussed above may be used to guide the patron to the new location upon acceptance, as well as to

5

help the patron decide whether to purchase the ticket and/or upgrade. For example, a graphical map of the stadium and/or textual description may be provided to the patron to help the patron decide the quality of the upgrade and whether to accept.

10

In one alternative embodiment, if the patron that has their ticket re-allocated in error, e.g., because the patron did not show up to the event based on the predetermined criteria but the patron was still planning on attending because they forgot about their seat being re-allocated, the system can re-allocate seats immediately upon the checking in of the patron and notify them that their seats have changed because they are late. In this situation, the stadium/venue might decide to further upgrade the patrons because of the mistake.

15
20

25

In accordance with one embodiment of the present invention, the process of the present invention specifically reserves seats of the highest or very high rating that are considered preferred, in the event a patron's seat is re-allocated prematurely or erroneously. In this

situation, the patron who has had their seat re-allocated because they will likely receive an even better seat as a result of the mistaken (stadium or patron) or premature seat re-allocation.

5

In another embodiment of the present invention, as patrons are entering the venue or stadium, they are provided advantageously with a map of the stadium so patrons can analyze the potential upgrade to make a decision whether the upgraded seats are sufficiently good or of value to warrant the patron moving and/or paying for the additional upgrade. By handing the patron the map of the stadium, the process of the the present invention is not required to transmit a detailed schematic to the patron's wireless device which would not normally be able to effectively permit the patron to evaluate the proposed upgrade seats. The map that is handed out may optionally include information for patrons on where to register for the upgrade and/or additional advertisement opportunities.

10

15

20

In one alternative embodiment, the patron
that has purchased the ticket, for example, a
season ticket holder, may advise the stadium that
for a particular game, set of games or all games,
they do not want their seats to be re-allocated,
5 and perhaps, an additional fee is assessed for
this type of patron. If the stadium provides the
ability for the patron to selectively opt out of
the seat re-allocation, the patron can, for
example, connect to the system via the Internet,
10 public switched telephone network, cellular
network, and the like, and notify the system that
they do not want their ticket re-allocated, for
example, because they are coming late to the
event. Other means of notifying the system and/or
15 other reasons may be utilized in connection with
the present invention.

In another alternative embodiment, the
system provides patrons the ability to
20 individually select when their tickets may be re-
allocated. For example, one patron may prefer to
only give up their ticket if they are late to the
game by 15 minutes, while another patron may be
25 willing to give up their ticket if they have not

5

arrived 15 minutes before the game. In alternative embodiments, the stadium may provide incentives for the patron to have their ticket re-allocated prior to the game because it increases the stadium's chances of re-allocating/re-selling the ticket.

10

The present invention has particular benefits for stadiums that are constantly sold out, but where patrons habitually do not show up. For example, many stadiums are sold out by season ticket holders that do not show up to the game on a regular basis. The present invention permits these tickets to be re-allocated in accordance with, for example, predetermined algorithms, and provide additional patrons a better experience. In addition, the present invention has the benefit of moving the patrons closer to the action/players, and therefore, the ability to support and/or motivate the players to play well. In additional alternative embodiments, the stadium may provide the original ticket holder a portion of the proceeds as a result of the ticket re-allocation, thereby providing additional incentive to the ticket holder to permit their ticket to be re-

25

allocated (when this is a voluntary program in the stadium). The stadium may then keep a percentage, portion or service fee from the resale and/or re-allocation of the ticket. Of course, the above embodiment may further apply to yet another embodiment where the stadium does not offer the upgrade to patrons sitting in the stadium, but to patrons that, for example, may be in the geographic vicinity of the game but that may not currently have any tickets or that may be willing to purchase the tickets when availability is determined and to travel to the event.

In an alternative embodiment, the system determines priority of re-allocation of seats based first upon patrons that have seats that may also be re-allocated. That is, the systems attempts to maximize the number of re-allocations by prioritizing the re-allocation based upon seats that may be re-allocated after already being re-allocated. For example, if front row seats in a stadium are available to be re-allocated, in this alternative embodiment, patrons that are in the next closest section for example on the field level would be upgraded first to those seats.

Then, patrons with less preferred seats, for example, in the upper deck would be re-allocated to the seats that have now become available from the patrons that have been upgraded to the front row. Thus, using this alternative priority scheme, the present invention maximizes the re-allocation numbers. Of course, this priority algorithm may be combined with additional factors, for example, relating to subscriber/patron value. As described above, additional factors may be utilized in the algorithm to determine the subscriber or set of subscribers to offer the upgrade.

In alternative embodiments, patrons in the vicinity of the upgraded and re-allocated patrons may optionally rate the upgraded patron, for example, for appropriate behavior, wearing of excessively large hats, drunkenness behavior, and the like. These ratings may then be taken into account in the re-allocation algorithm for future upgrades to the patron.

In alternative embodiments, the patrons eligible for the upgrade may be notified using standard email communications over a wireless device, mobile telephone, and/or other standard

communication means. For example, standard text-to-voice and/or voice-to-text communications may be used to contact the patron to evaluate whether an upgrade will be accepted and to actually accept
5 the upgrade.

In another embodiment of the invention, as indicated above, when the patron registers for ticket re-allocation and/or purchase, via for
10 example the Internet, the patron may enter payment information at that time. Accordingly, when the patron accepts the ticket re-allocation and/or purchase, the system can automatically charge the patron without the patron actually
15 submitting/typing, for example, credit card information over a wireless device. The tickets of the present invention may be used to re-allocate patrons that are sitting in the stadium and/or patrons that have already purchased tickets in the
20 vicinity of the stadium but were unable to get seats and/or may be in the vicinity of the stadium but were unable to get seats. Since the present invention re-allocates and/or sells tickets at any time prior to and/or after beginning of game time
25 in accordance with one embodiment, the patron may

be in the general vicinity of the stadium to take advantage of this embodiment of the invention or even at any location when being offered upgrades and/or seats well in advance of the game. For 5 example, the present invention can upgrade or sell tickets to patrons well in advance of the game since it advantageously is permitted or has the authority to resell tickets either via ticket holders that do not show up during the game 10 and/or, for example, season ticket holders that have authorized the stadium in advance to resell their tickets based on predetermined criteria, for example, when the season ticket holder notifies the stadium that they will not be present at next 15 weeks game.

In one optional embodiment of the invention, the patron presents the usher with the confirmation number which the usher can enter into 20 a wireless device using a local or private wireless network, or can simply use a walkie talkie or telephone to call the dispatcher to confirm the upgrade and/or new seats using the customer provided confirmation number. The 25 dispatcher will have access to the system to enter

the confirmation number to confirm the validity of the upgrade. Alternatively, a patron will retain their old ticket. The patron will give in the old ticket to the usher which is scanned or barcoded by the usher for immediate identification of new seats and used in place of, or in addition to, confirmation number.

Of course, the confirmation may optionally
be made via customer name with an appropriate
identification card or other information.
Further, alternative methods may be used to verify
that the confirmation number and/or ticket being
used by the patron is valid. For example, the
patron may be equipped with a printing device
associated with the wireless device or download an
actual ticket on line from home prior to the game
for the new ticket or upgrade. Alternatively, the
patron may be equipped with an identifier card,
optionally including a bar code with a unique
identifier relating to the patron's account
information and profile that can be scanned for
additional convenience. Alternatively, a wireless
device may be used to securely store this type of
identification and/or account information.

In at least one alternative embodiment of
the invention, the patron may comprise optionally
a corporate account that has a number of tickets,
for example, season tickets. In this embodiment,
5 the corporate account may have associated
therewith a plurality of email addresses or other
communication addresses to transmit the seat or
upgrade offer to a number of potential patrons
that may rotate their attendance at the games. In
10 accordance with this optional embodiment, multiple
emails can be stored for a single user/corporate
account, and the system may transmit individual
messages to all email addresses, or may only
transmit messages to individual patrons for
15 corporate account that individually advise the
system that they are associated with a particular
ticket/bar code for a particular game and will
be/are present at a particular game.

20 In an alternative embodiment, patrons may
enter the stadium and subsequently inform the
system that they are present and interested in an
upgrade via a kiosk where the patron can scan a
bar code and enter their customer number to be
25 eligible for upgrades during the game. The system

is then able to transmit a message to the customer, assuming that the customer has pre-registered with the system with the appropriate contact information. Alternatively, or in addition to individual use of a kiosk(s), the customer sales office may have a kiosk or additional functionality to enter the customer name and/or customer account and scan in the bar coded ticket on the spot to register each patron as they enter the stadium or venue.

As described above, the patron may be transmitted, for example, emailed, the actual ticket or a confirmation number that they can use proceed to their seat and/or re-allocated seat. An optional graphical display via, for example, GPS, as discussed above may be used to guide the patron to the new location upon acceptance, as well as to help the patron decide whether to purchase the ticket and/or upgrade. For example, a graphical map of the stadium and/or textual description may be provided to the patron upon entry in the stadium to help the patron decide the quality of the upgrade and whether to accept when an offer is received by the patron at a predetermined time.

The graphical map may comprise a small booklet with a map of the stadium showing seat locations, and optionally a game schedule.

5 The present invention has particular benefits for stadiums that are constantly sold out, but where patrons habitually do not show up. For example, many stadiums are sold out by season ticket holders that do not show up to the game on a regular basis. The present invention permits these tickets to be re-allocated in accordance with, for example, predetermined algorithms, and provides additional patrons a better experience.

10 In addition, the present invention has the benefit of moving the patrons closer to the action/players, and therefore, the ability to support and/or motivate the players to play well.

15 In additional alternative embodiments, the stadium may provide the original ticket holder a portion of the proceeds as a result of the ticket re-allocation, thereby providing additional incentive to the ticket holder to permit their ticket to be re-allocated (when this is a voluntary program in the stadium). The stadium may then keep a

20 percentage, portion or service fee from the resale

25

and/or re-allocation of the ticket. Of course, the above embodiment may further apply to yet another embodiment where the stadium does not offer the upgrade to patrons sitting in the stadium, but to 5 patrons that, for example, may be in the geographic vicinity of the game but that may not currently have any tickets or that may be willing to purchase the tickets when availability is determined and to travel to the event.

10

In alternative embodiments, patrons in the vicinity of the upgraded and re-allocated patrons may optionally be eligible for a dating or matching service where patrons register and 15 provide profile information to the system and/or through a third service provider dating service. Once the system knows that the patrons will be coming to the game and/or have actually checked in to the stadium, the system can then arrange for 20 the two, four, etc. patrons to meet each other by allocating and/or re-allocating seats to the patrons together. Thus, based on profile information, customer request and availability, the system is able to upgrade or sell tickets to 25 patrons to maximize their chances of meeting

someone at the game. This optional feature provides significant potential enjoyment for the patrons participating in this dating or connection program. In accordance with this embodiment, one 5 possible sequence of acceptance steps involves profile matching the two patrons (or groups of patrons) based on predetermined profile information; transmitting a first message to the first patron regarding availability of the second 10 patron and requesting a conditional acceptance form the first patron; transmitting a second message to the second patron indicating that the first patron has conditionally accepted and request the second patron to accept; and when the 15 second patron accepts before the first patron has rescinded the conditional acceptance, finalizing the upgrade and/or seat allocation for the first and second patrons. This embodiment of the invention is a complete reverse from typical 20 dating and/or matchmaking services which attempt to develop detailed algorithms for the matching process because of the significant decision that exists in determining who to spend valuable time with. In accordance with the invention, patrons 25 are already present at the game, and therefore, half or more than half the effort is already done.

The remainder is to actually meet the other person which can be accomplished with profile criteria, whether or not the algorithms are very sophisticated.

5

In one embodiment, the patrons that are being matched have their original seats maintained and not made available for other upgrades in the event the matching does not work out early on. In 10 this embodiment, one or both the patrons can return to their original seat. Hopefully, there will not be a significant argument of who would need to return to their original seat if an upgrade is actually performed. In addition, in 15 accordance with this embodiment, the seats that are selected do not necessarily have to be better seats in the classical sense. That is, seats further away from other ticket holders might be considered preferred when matching two individuals 20 for the first time. Alternatively, couple that would prefer a little more privacy or quieter game might request to be moved to a more isolated area. Alternatively, families with small children might prefer to be moved to a less busy area as well 25 during the game where the children might be able

to freely move around. All these scenarios and/or alternatives are possible in view of the present invention. The advantage of performing a match in a public setting is that the patrons do not have
5 to worry about leaving or ending the date, and also do not have to worry that the other person will have their home address.

In an alternative embodiment of the
10 dating/matching service of the present invention, a dating/matching service is provided to patrons that enter a predetermined location and/or geographic area. The patron can enter physically the location and/or geographic and register, for
15 example, by manually entering data in a computer, transmitting information relating to the registration of the patron via infrared, Bluetooth and/or other technology, and/or automatically register via use of GPS information associated
20 with or used in a wireless device associated with the patron. For example, patrons that enter an establishment can register upon entry that they are now present within the general location of the establishment. Upon registry, the system can
25 implement various matching algorithms currently in

use by various matching services in connection with other patrons that have also registered at the same location and/or a location in the general area that the original patron registered.

5 According to this embodiment, the system advantageously matches individuals that have registered in the same geographic location and/or geographic locations that are in the same general area where the patrons can walk and/or drive to
10 meet each other in the same general time frame, such as the same evening, same afternoon same day, and the like.

15 In addition, this feature also optionally permits the patrons that have participated in the program to rate one another for future dates. For example, one patron can rate the conversational benefits of the second patron, the appearance of the second patron, the overall short term versus
20 long terms relationship goals of the patron, and the like. These ratings may then be taken into account in the algorithm for future seat assignments, re-allocations and/or upgrades in the future for the first and second patrons, and all
25 other patrons will now benefit with the additional

profile information of the first and second patrons. The matching service may be for amusement or work related networking purposes, for example, to meet an executive that the patron currently
5 works with or wishes to work with/sell in the future.

In an alternative embodiment of the
10 dating/matching service of the present invention, a dating/matching service is provided to patrons that enter a predetermined location and/or geographic area. The patron can enter physically the location and/or geographic and register, for example, by manually entering data in a computer,
15 transmitting information relating to the registration of the patron via infrared, Bluetooth and/or other technology, and/or automatically register via use of GPS information associated with or used in a wireless device associated with
20 the patron. For example, patrons that enter an establishment can register upon entry that they are now present within the general location of the establishment. Upon registry, the system can implement various matching algorithms currently in
25 use by various matching services in connection

with other patrons that have also registered at the same location and/or a location in the general area that the original patron registered.

According to this embodiment, the system

5 advantageously matches individuals that have registered in the same geographic location and/or geographic locations that are in the same general area where the patrons can walk and/or drive to meet each other in the same general time frame,
10 such as the same evening, same afternoon same day, and the like. In addition, the system advantageously and optionally provides the feature of allowing patrons to text message one another directly, and/or exchange pictures via wireless
15 email, text messaging, and other wireless devices that provide the standard capability of exchanging pictures, such as T Mobile and/or Sprint.

In alternative embodiments, the ticket
20 holder can call in via a voice to text message, text message and/or email and let the stadium know early that they are not coming. In this manner the ticket holder obtains the convenience of the stadium or venue reselling their tickets in
25 advance, thereby providing the venue with

additional time to maximize the resale of the ticket.

In alternative embodiments, when the
5 patron enters the stadium, they have their ticket
barcoded or other device that detects their
presence can be used such as infrared, Bluetooth,
etc., and then they can become eligible for an
upgrade. The patron can register in advance that
10 they want to receive upgrades by providing their
name, message address, e.g., email, telephone text
message address, etc., and optionally their credit
card or other payment mechanism for upgrades that
actually cost money as opposed to free upgrades.
15 In alternative embodiments, the patron can
register at the ticket booth when purchasing their
original ticket. In this scenario, the stadium
representative can enter this information on
behalf of, and with the permission of, the patron
20 since the patron may already be providing their
credit card, debit card, etc. to purchase the
original tickets. Alternatively or in addition, a
kiosk may be provided where the patron can enter
their original ticket, e.g., scan in their
25 original ticket and provide their name and text

message information in the stadium to register for a one time upgrade for the game after purchasing, for example, a regular admission ticket.

5 In alternative embodiments, an usher can verify that the patron should be upgraded by the patron providing the confirmation number that may be transmitted in real-time by the system, and/or by the patron using their original confirmation
10 number or original ticket with barcode or other identification means, such as a smart card, infrared reader, etc. that represents original ticket and presenting same to the user. The usher then needs only to scan in the original ticket and
15 the system will verify whether the patron associated with the original ticket is valid and whether the upgrade is valid.

20 In alternative embodiments, a warning message may be sent to the ticket holder that has not shown up to game warning them that if they do not respond within a certain time period that their seat will be re-allocated or re-assigned to another patron. Similarly, a release message may

be sent to the ticket holder after their seat has actually been released and/or re-allocated, thereby notifying the patron that if they change their mind in attending the game, they will have 5 to obtain an additional ticket. In alternative embodiments, the ticket holder that has their seat released and re-allocated can be themselves re-allocated a similar, worse or better seat, depending on, for example, their subscriber value 10 and/or other criteria. For example, if the patron is provided a better seat, this will encourage them to more readily give up their seats in the future even if they are attending the game. On the other hand, if the patron is provided a worse 15 seat, then this encourages them not to artificially give up or have their seat released when attending the game. Accordingly, the present invention is designed to deal with various behavioral patterns of specific ticket holders, and may optionally and advantageously be a ticket 20 holder specific with respect to various criteria for re-assigning, releasing, selling and/or re-allocating tickets.

5

In alternative embodiments, the system transmits to the ticket holder a welcome message after being upgraded and after having been moved to a new upgraded seat location. In one embodiment, the system identifies that the patron has been successfully upgraded after the patron provides the usher with a confirmation number or original ticket, which is then verified by the usher and system.

10

15

20

25

In alternative embodiments, the system, after having identified which patrons have checked into the stadium and/or have been upgraded, transmits a trivia question and/or additional advertisements to all patrons attending the game. In alternative embodiments, the information is transmitted to both patrons that are attending the game and additional patrons that have registered in the past to receive information but that are not attending the game. The participants can, for example, answer trivia questions and respond with their wireless device. Depending on whether the patron is attending the game or not, the system may determine to offer or deal with each of the patrons differently. For example, for patrons at

the game, winners may be successively determined and narrowed, as patrons successfully and unsuccessfully answer questions, round after round of questions in a "spelling bee" format. For
5 patrons that are not attending the game, winners may be declared, or statistics provided to the broadcast station that can be aired on television. In yet additional alternative embodiments, instead of transmitting information/questions to the
10 patrons via the wireless device, the information/questions are displayed on the stadium billboard for patrons at the game and/or on television for patrons that are watching the game on television. The patron can then merely respond via the device, e.g., the telephone accordingly
15 via a voice-to-text system or via other mobile devices via text messaging.

In alternative embodiments, the
20 present invention provides the advantage of additional advertising sponsorship to the venue. For example, in one embodiment, the venue is partitioned into different locations that may be assigned to different sponsors. In one embodiment,
25 the sponsor that provides the most value may be

assigned a certain number of premium seats that are not available to other sponsors.

For example, the sponsor may offer a
5 discount on the upgrade if you are a Verizon or
Verizon Wireless customer or they credit your cell
account for each seat upgrade or you get say 30
free minutes, etc. In alternative embodiments, the
present invention provides the advantage of one
10 wireless provider to advertise on another wireless
providers mobile phone or wireless device. For
example, if Verizon Wireless is a sponsor of the
upgrade system for a particular stadium, the
present invention will still work with, for
15 example, AT&T, SPRINT, and CINGULAR customers. An
advertisement message sent with the upgrade offer
may read on the AT&T phone, "brought to you by
Verizon Wireless." In an alternative embodiment of
the present invention, text messaging is
20 optionally used for mobile phones to perform the
message communication of the present invention.
The user is only required, in one embodiment, to
reply or respond with a "Yes" to accept the
upgrade offer since the user has advantageously
25 pre-registered with the system, thereby minimizing
the required communication/input by the user. In

an alternative embodiment, the user, instead of pre-registering with the system, is charged on their wireless or even regular telephone number bill when they accept the upgrade offer. Thus, the
5 wireless system that either administers the user's regular or wireless account or the upgrade sponsor may be responsible for actually billing the customer in this alternative embodiment.

10 In the alternative embodiment when text messaging is optionally used alone or in combination with other communication methods, the system provides the additional advantage of maximizing bandwidth usage by not requiring use of
15 bandwidth on the wireless voice system, thereby maximizing system resources.

20 In another alternative embodiment, the present invention optionally and advantageously provides a security and/or safety feature in the event of, for example, a minor event where a parent gets separated from a child, a disaster or other event that might require evacuation of the stadium. In one embodiment, the
25 person needing help provides their name to an attendant that can search the system for the

contact information of their companion/parent. The system can thereafter send an email and/or text message to the companion/parent regarding the status of that person and provide instructions for meeting that person or arranging help, authorizing medical procedures, and the like. In another embodiment, the person requiring help, e.g., a child provides the attendant or kiosk with their ticket which can, e.g., scan the bar code or other reader system. The system can either automatically provide a text message to the parent who can then reply to the child/attendant via the kiosk to meet the child.

15 Alternatively, the parent can be instructed to meet the child at a predetermined location, and to stop looking for the child because the child was found. Thus, for this example, the person who is lost or separated from their party can notify security or access a kiosk. Security can, for example, notify the parent that child is in safe custody, and should not search the stadium, and therefore, meet outside stadium in a pre-specified safe place.

25

In an alternative embodiment, if a child/person is separated, the security guard/kiosk can arrange the best place to meet, either in or outside the stadium, together based on an optional global positioning system (GPS). In addition, the party with the mobile device can be provided directions on where to go to meet their party from who they have been separated.

10 In an alternative embodiment, the present invention may also be used in a security, defense and/or safety setting to direct patrons in a stadium for an orderly evacuation or notify patrons regarding status of a safety related event

15 via, for example, a broadcast message including text message, email and the like. In this manner, system communication resources may be most efficiently utilized by not over-utilizing the system via voice communication, unless completely necessary. For example, the message can be broadcast in the event of an impending hurricane. In this situation, patrons in different sections get different messages, for example, to exit the stadium out of gates/exits that are either less occupied or closest to the section the patrons are sitting in. Advantageously, the present invention

20

25

has the patrons contact information, including
optionally and advantageously text messaging, that
can be broadcast or sent to different patrons. The
advantage of text messaging is that the bandwidth
5 is more efficiently used in the event of an
emergency, and there are no busy signals as in a
voice network. Further, the message is send, and
if the network is at capacity, the system can
automatically resend or the message will be placed
10 in queue and sent as soon as capacity becomes
available.

In another alternative embodiment of
the invention, the security bracelets of the
15 present invention can be required to be displayed
and read on exit from a venue when a parent has
reported that a child has been separated. In this
event, all patrons are checked when they exit the
stadium. The parent can report the specific seat
20 that the child was sitting in, and then on exit,
all patrons are checked. If the specific seat
appears or if a child attempts to leave without
scanning or presenting their bracelet, then that
child can be taken into custody until their parent
25 arrives, thereby possibly preventing abduction.

For instance, in sporting venues the bracelet ticket includes the machine readable information that comprises at least one of a bar code and radio frequency identifier used for security check in, and optionally check out. In this manner, the standard reading machines that can scan the bar code or RFID information can keep track of people that have checked into the sporting event and/or venue. Advantageously, the machine readable information on the bracelet can also be used by the venue in the event the patrons seat assignment is modified, for example, via an electronic ticket exchange or upgrade program. In this embodiment, the visible indicia are no longer valid for the actual seating that may be dynamically changed and only represents optionally an initial seat assignment. However, the machine readable information may be used as a code to reference the specific patron and assign that patron a new seat. Thus, when the ticket reader scans the ticket and actually identifies, for example, the bar code, this information can be used to reference the patron, update and/or confirm the patron's current seat via the reader used, for example, by ushers in the venue, kiosk, entrance to the venue, and the like.

In an alternative embodiment, the security bracelets of the present invention can be required to be displayed and read on exit from a venue when 5 a parent has reported that a child has been separated. In this event, all patrons are checked when they exit the stadium. The parent can report the specific seat that the child was sitting in, and then on exit, all patrons are checked. If the 10 specific seat appears or if a child attempts to leave without scanning or presenting their bracelet, then that child can be taken into custody until their parent arrives, thereby possibly preventing abduction. This information, 15 as previously mentioned, may be visually cognizable for the patron and in combination, readable by electronic means if the bracelet includes a magnetic strip, bar code imprinting, or RF chip.

20

In an alternative embodiment of the present invention, the security bracelet and ticket combination of the present invention advantageously includes a bar code or other 25 machine readable information such as a RFID device. When, for example, a child is separated

form their parent, the parent can notify security and the seat number associated with the child. If the child attempts to leave with their bar code/identifier, the system detects the bar code/identifier as either being valid and identifying the child that is missing or being invalid and raising another red flag. In an alternative embodiment, the bar codes/identifiers associated between children and adults correspond such that the child identifier must be within a predetermined time and/or number of checking out identifiers from/within the adult identifier. If this does not occur, the system determines that the child is leaving without their parent, and possibly being abducted.

In an alternative embodiment, the system links one or more tickets/identifiers together and requires the tickets/identifiers to exit the venue or event within a predetermined time period from one another and/or within a predetermined number of tickets/identifiers that have exited the venue and/or event. In the event that one ticket/identifier exits the venue or event and the associated identifier does not, then an alarm or

other indictor occurs, and the attendants will detain the patrons that have initiated the alarm to for security purposes.

5 In an alternative embodiment, the tickets are advantageously coded with designations such as adult, child and the like. In the event a child ticket/identifier exits the stadium before the associated adult and/or more than a predetermined time period and/or number of patrons exiting, the system can initiate an alarm so that an attendant can determine if a child has exited the venue or event without their parent or with a wrong parent potentially averting a kidnapping. In this

10 embodiment, an additional combination is the use of the standard fast pass feature, for example, at theme parks, and the like, where the venue records predetermined events that the user of the card enters in a faster line. In this embodiment, if a child ticket/identifier is not associated with a parent ticket/identifier, for example, as

15 described above, the child may be denied entry into the event or venue if not accompanied by their parent. In alternative embodiments, the

20 venue/event sponsor or organizer associates

25

5 tickets upon request from the patron. In addition, in another alternative embodiment, a kiosk is provided inside and/or outside the venue for, for example, parents to register their tickets and have them associated with their children's tickets to prevent the child from exiting the venue without them, for example, as described above.

10 In an alternative embodiment of the present invention, the system and method are adapted to utilize any type of wireless device with different interface and communication options. For example, different wireless devices have different constraints with respect to the interface, e.g.,

15 number of characters, how the subject and body of the messages are used/communicated, etc.

Accordingly, the present invention optionally provides a protocol conversion system depending on the type of wireless device and the wireless

20 device constraints, including message constraints and/or the wireless communication system. In alternative embodiments, the system determines the wireless device provider based on the address received from the wireless device, and is able to automatically determine the type of message and/or

25

message constraints and transmission constraints associated therewith based for example, on real-time information or on pre-determined stored information on the device and/or communication system. Accordingly, a protocol conversion system for different wireless devices is provided by the present invention for sending and/or receiving messages, such as upgrade offers, responses, acceptances, and the like, from a variety of different users/mobile devices and wireless systems.

In another alternative embodiment of the present invention, a security bracelet is advantageously utilized, for example, such as the security bracelet disclosed in U.S. application number 10/680,207, filed on October 8, 2003, to Abraham I. Reifer, et al., and incorporated herein by reference, in the event of a reported event, security breach, abduction, and the like. In this embodiment, all patrons exiting the stadium must show their ticket and/or identifier so that the venue can check all patrons out of the stadium. Thus, for example, if two kidnappers come in the stadium, and want to use one bracelet for a child, the second kidnapper will be stranded in the stadium. In addition, if one kidnapper buys two

tickets, then upon exit with the child and the additional ticket, a barcode/identifier will be exiting without ever having checked in, and then the alarm will go off as well.

5

In another alternative embodiment, the present invention provides a broadcast message to warn patrons of an event, such as an advertisement, sale and/or even a weather related event such as a hurricane that might require the venue to be evacuated. Advantageously, in at least one embodiment, the broadcast message comprises standard text messaging that optimizes or better utilizes capacity from the communication system. Thus, when using text messaging capabilities, the present invention efficiently transmits text messages to numerous subscribers regarding, for example, exit information, contacting and/or meeting additional parties that have been separated, and the like.

In an alternative embodiment of the present invention, the present invention optionally provides the capability to penetrate into secondary market with season ticket holders selling ahead of time the games they will not be

25

attending. For example, the present invention optionally provides the feature for the season ticket holder and/or general ticket purchaser the ability to view in advance of the season and/or game the schedule, and to alert the venue and/or stadium of games and/or events they will not be attending, thereby permitting the stadium/venue to attempt to resell the tickets to other patrons.

For example, in one embodiment of the invention, the patron is provided with a monthly schedule listing the events that may be attended. The patron, such as a season ticket holder, may then click or place an indicator on all games they will not be attending for the season in advance, thereby providing the stadium with the ability to resell tickets well in advance of the event. Once the patron completes identifying games that will not be attended, the system then compiles a list and transmits the list to the patron for an optional confirmation. This list is then used by the system to release seats well in advance of the game. In an alternative embodiment of the invention, registered users of the system for, for example, upgrades, may also be notified of seat availability for sales prior to the game/event. In an alternative of this embodiment, registered

users may receive text messages, emails, and the like, notifying them advantageously of the availability of seats that heretofore have never been easily available to the public for sale,
5 thereby allowing the venue to participate in secondary market ticket sales.

In one alternative embodiment of the present invention, the system/process of the
10 present invention provides or operates as a middle person/broker between the ticket holder that is returning tickets to the venue, such as the season ticket holder, and a ticket sales system and/or company, such as tickets.com, by notifying the
15 tickets company of the newly available seats via notification by the ticket holder, such as the season ticket holder of season ticket games not being attended.

20 In one alternative embodiment of the invention, the system and/or process transmits text messages, emails and the like, to offer tickets and/or seats and/or admittance to subscribers for events and/or games with empty
25 seats even before game. Thus, the present invention allows the venue to participate in the

secondary ticket sales market and the upgrade market, thereby increasing revenue and fan loyalty.

5 Of course, all of the embodiments of the present invention may be used for any reserved seating event, and/or venue that require tickets for entry thereof.

10 In another alternative embodiment of the present invention, the use of machine readable identifiers provides advantages for, for example, the upgrade program or ticket exchange of the present invention. For example, when the upgrade, 15 re-allocation and/or electronic ticket is issued, the machine readable identifier, for example, the bar code, on the original ticket is invalidated, thereby preventing use of the invalidated ticket. Accordingly, when a new ticket holder purchases 20 the ticket form the season ticket holder, the new purchaser will be issued a new machine readable identifier, and optionally a new paper ticket. The present invention advantageously is able to handle the issuance of a new ticket and invalidates the old ticket and optionally the old identifier that 25 has, for example, been returned by the season

ticket holder, thereby providing dynamic ticketing capability.

In an alternative embodiment of the present invention, the new patron obtains a new identifier such as a barcode, the old bar code of, for example, the season ticket holder is invalidated. In one embodiment of the invention, season ticket holders are offered to opt in the upgrade process. Various commercial incentives are possible for the season ticket holder to opt in the upgrade process, such as monetary compensation when their ticket is used for an upgrade and/or resold whether they express their intention not to go to the game prior to the game, and the like.

Alternatively, season ticket holders may be offered that the cost of their season tickets will, for example, remain the same as the previous year or be reduced if they participate in the program. Therefore, the combination season ticket trade-in and upgrade program in one embodiment of the invention will be beneficial to season ticket holders by allowing them to trade when they already know that they have no intention of attending a game, and allow the season ticket holder to recoup some cost of the season tickets

if they do not attend and their ticket is used as an upgrade. In addition, additional patrons of the event and/or sports team are permitted to attend the game in locations/seats that they might never
5 have been able to obtain access to. Further, the venue/stadium/team maximize revenues by being able to place tickets on the secondary market when the ticket holder notifies the venue early enough that they are not attending the event, the venue also
10 obtains additional revenue from upgrades when tickets are upgraded, and the venue obtains additional fan loyalty.

In another embodiment of the present
15 invention, the system provides the ability to advertise via email, text messaging, and the like, for one wireless carrier on the wireless device that is using another wireless carrier. Since the user of the wireless device has requested the service, the user appropriately receives the communication from the ticketing system of the present invention, and therefore, also appropriately received the advertisement from the wireless carrier that is different than the
20 wireless carrier that the user of the wireless may be using at that time.
25

In another alternative embodiment of the present invention, offers to purchase seats either during the game or even well in advance of the game are "pushed" or transmitted out to registered users that have supplied their wireless and/or Internet addresses. For example, patrons can register in advance for the upgrade and/or regular ticket offers to purchase admittance via various methods including the Internet. When seats band/or admittance becomes available, a broadcast message or other standard messages may be transmitted to the registered patrons to notify them of the seat availability. Thus, seat offers are "pushed" to registered users that have requested this service advantageously to a wireless device and/or other address including standard telephone communication, as well as additional optional advertisements. The system, in one alternative embodiment, provides the user the option when registering to accept certain types of advertisements to be received on their wireless device via email and/or text messaging. In other embodiments, the user does not have the option of which advertisements to receive.

Advantageously, in accordance with one alternative embodiment of the present invention, if a patron decides to attend an event such as a sporting event when the patron does not have time to wait to receive paper tickets (e.g., the patron is visiting in another city/location and does not have time to wait to receive tickets via mail and is on the go), the system of the present invention transmits a ticket to the patron via, for example, a wireless communication system and/or other standard electronic communication system such as the Internet, and the patron can present their ticket, for example, on their wireless device and show up to game.

15

In another embodiment of the present invention, an interactive patron entertainment system is provided where trivia questions, for example multiple choice questions on a variety of topics, are sent to the patron via email and/or text messaging and/or displayed on the scoreboard with an address to respond, such as trivia@utixx.com. Patrons then text message and/or email and/or answer questions via voice-to-text messaging their answers. The system can then display the overall number of answers that are

25

correct and incorrect, display bar graphs and the like to the event patrons by displaying on a display, such as the scoreboard of a sporting event. The system then identifies the patrons that have correctly answered the question and can then send new questions to be answered just to the previously correct patrons, thereby further narrowing the group of patrons. Successive questions can be sent, including questions that are not multiple choice and that require actual text to be entered via standard wireless device interfaces, and patrons are successively eliminated until a single or sub-set of patrons are determined to be the winners. Advantageously, the present invention provides entertainment to the patrons at the event by optionally providing successive questions throughout an event. In another alternative embodiment, simultaneously with the questions to the patrons present at the event, the present invention is also capable of sending the questions to patrons that have registered with the system, but are not at the event, for example, at home watching on the television or simply not currently involved in the game. The present invention is able to transmit the same and/or different questions to those

registered users as well. Further, in another alternative embodiment of the present invention, viewers watching the television, for example the same event that patrons are attending, may be
5 presented with the same and/or different questions as well as an address and/or telephone number to call and provide their answer which they can compete with patrons at the event or can be used to provide a separate comparison of the answers
10 and/or separate winners to the contest. In this embodiment, for example, questions may be displayed on the television, Internet website, and the like, during the event, and viewers watching the television may respond to the questions as
15 described above. The system can optionally compare the percentage of correct answers between the television viewers and the patrons at the event, and/or provide separate awards or a single award to the winners from the pool of
20 television/Internet viewers and/or patrons in the event.

In another alternative embodiment of the present invention, the system uses a seat database
25 to determine which of the reserved seats are currently in use. The system may integrate with

the seat database system of a venue and/or stadium or optionally be used in parallel with the seat venue/stadium database. For example, prior to the event, the system may utilize the seat database of 5 the venue to determine available seating and patrons that do not show up after a predetermined period of time. Alternatively, the present invention can operate using a separate database from the event/venue by copying or building a 10 separate database used for the ticketing and/or upgrading according to the present invention. In this alternative, as patrons enter the venue, they are checked in directly to this separate database. At the time of the event, the system will be able 15 to check-in patrons using either the identification system, e.g., bar code scanner, of the event or venue, or provide a separate identification system.

20 In alternative embodiments of the invention, the patron that knows they are attending the game but is going to be late can send in a HOLD message even prior to being provided a warning message that their seats are to 25 be released if the patron does not respond to the message with the HOLD request. That is, in this

embodiment, since the patron already knows well in advance that they are attending the game, but perhaps stuck in traffic, the patron can initiate the HOLD message before even being warned in advance of the possibility of their seat being released.

5 In another alternative embodiment, patrons
that have registered with the system and
10 optionally checked into the stadium and/or venue
in advance and who also know that they would like
an upgrade and/or ticket, may initiate their own
upgrade request to the system to notify the system
of their willingness to purchase an upgrade and/or
15 new ticket for the event/venue. The system may
then place these patrons on a higher priority
since they have already expressed and intent
and/or willingness to purchase the upgrade or
ticket. The patron may notify the event and/or
20 stadium of their willingness optionally well in
advance of the game or near/after game time at a
time which the patron commits or expresses an
additional heightened desire to upgrade and/or
purchase a ticket.

In alternative embodiments, the system includes the advantage of allowing patrons to register free for a predetermined period of time, for example, for the first year, without paying a yearly subscriber fee. Alternatively and/or in addition thereto, the system provides the patron with their first upgrade for free or for a reduced rate to further encourage the patron to register with the system and method of the present invention. Alternatively and/or in addition thereto, the system of the present invention offers the patron reduced and/or free concessions when purchasing a membership, ticket and/or upgrade to further encourage the patron to participate in the offers of the present invention.

In alternative embodiments of the present invention, the matching system and/or process, permits participants in the program to initiate a message to the system with the seat location and/or name of the patron that they would like to be matched with for a meeting, networking and/or socializing such as a date. In this embodiment, the system may the push the message to the other

subscriber and assign new seats to the individuals that are to be matched. Alternatively, the system need not require a specific confirmation that the second individual to be notified of the potential 5 match is physically located near the first individual, but can rely on the first individual to provide that information. For example, the first individual may see a potential date in a restaurant, and may then send a message to the 10 system with that person's name or address, that they would like to meet that other individual. In that situation, the second individual will receive a message of the possible match, and can respond and accept or reject the offer to meet. The second 15 individual can then provide a meeting destination or the system can suggest a meeting place based on the first individual advising the system of their location, and the location of the second individual.

20

25

In another embodiment of the present invention, an interactive patron entertainment system is provided where trivia questions, for example multiple choice questions on a variety of topics, are sent to the patron via email and/or text messaging and/or displayed on the scoreboard

with an address to respond, such as
trivia@utixx.com. Advantageously, the multiple
choice questions each have unique selections, such
as a1, b1, c1 and d1 for question #1; a2, b2, c2,
5 and d2 for question #2; a3, b3, c3 and d3 for
question #3, and the like. In this embodiment,
the actual timing of questions is not necessary
since each question and answer is unique.
Therefore, the speed of responding to the question
10 is immaterial to the winner of the contest and/or
correct answer. Also, in the event one patron
answers the question late, there will be no
confusion which question the patron is submitting
an answer for. Patrons text message and/or email
15 and/or answer questions via voice-to-text
messaging their answers as indicated above using
the unique set of answers, in one embodiment. In
alternative embodiments, the first predetermined
number of patrons that answer the question
20 correctly are considered the winners.

The system can then display the overall
number of answers that are correct and incorrect,
e.g., a1 50%, b1 28%, c1 12% and d1 10%, and
25 display bar graphs and the like to the event
patrons by displaying on a display, such as the

scoreboard of a sporting event. The system then identifies the patrons that have correctly answered the question and can then send new questions to be answered just to the previously correct patrons, thereby further narrowing the group of patrons. Successive questions can be sent, including questions that are not multiple choice and that require actual text to be entered via standard wireless device interfaces, and patrons are successively eliminated until a single or sub-set of patrons are determined to be the winners. Advantageously, the present invention provides entertainment to the patrons at the event by optionally providing successive questions throughout an event. In another alternative embodiment, simultaneously with the questions to the patrons present at the event, the present invention is also capable of sending the questions to patrons that have registered with the system, but are not at the event, for example, at home watching on the television or simply not currently involved in the game. The present invention is able to transmit the same and/or different questions to those registered users as well. Further, in another alternative embodiment of the present invention, viewers watching the

television, for example the same event that
patrons are attending, may be presented with the
same and/or different questions as well as an
address and/or telephone number to call and
5 provide their answer which they can compete with
patrons at the event or can be used to provide a
separate comparison of the answers and/or separate
winners to the contest. In this embodiment, for
example, questions may be displayed on the
10 television, Internet website, and the like, during
the event, and viewers watching the television may
respond to the questions as described above. The
system can optionally compare the percentage of
correct answers between the television viewers and
15 the patrons at the event, and/or provide separate
awards or a single award to the winners from the
pool of television/Internet viewers and/or patrons
in the event.

20 As discussed above, one or more of the
above alternative embodiments may be incorporated
into the embodiments described above, and/or any
of the embodiments discussed below. Furthermore,
any of the embodiments of the present invention
25 may be used for any reserved seating event.

FIG. 27 is a flowchart of a fifth embodiment of the invention. In FIG. 27, the process begins as all tickets are checked in, for example, as the patrons enter the reserved seating area, such as a stadium or theater, through, for example, bar code readers, scanners, infrared readers, and/or manually or other method where the patron is checked in, either at the gate, seat or other location. For example, patrons can optionally check in a predetermined time before the event through a wireless device, Internet connection, manual or voice recognition telephone, or other manner. The important point is to provide a standard manner for allowing patrons to check in, and if the patron fails to check in using a predetermined procedure, to allow that seat to be provided to another willing patron in accordance with a process to be described below. Currently, such a process is impossible and unthinkable in view of the difficulty reserved seating events have in simply getting the patrons seated prior to the beginning of the event. The present invention represents a revolutionary process to enhance event enjoyment, earn patron loyalty and optionally provide additional revenues.

to the theater/stadium or optionally other patrons with the desirable ticket.

The check in procedure continues for a
5 predetermined period of time until a predetermined time period has expired, for example, 5 minutes before the event begins, 10 minutes after the event begins, after a predetermined event, such as the second act of a play, and the like. Once the
10 predetermined time period or event has been completed, the check in procedure may be considered completed to begin the seat re-allocation process. To begin the seat re-allocation process, a re-allocation algorithm is
15 used to re-assign seats for patrons that are willing or interested in different or better seats. Such re-allocation processes or algorithms may include a random process, a process where priority patrons are given priority for re-
20 assignment of seat, a process where patrons are willing to pay additional for the re-assignment to either the theater or the individual patron whose seat is being provided to another patron, frequent event patrons, season ticket patrons, or other
25 predetermined process.

If the patron that is identified by the re-allocation process is determined to be present in the theater, for example, via mobile telephone, wireless device, and/or manual verification, an optional sub-process determines whether the patron's optional profile is also satisfied with the available seating. If the optional subscriber profile is not satisfied, then the re-allocation process searches for another possible patron. If the optional profile sub-process is satisfied, then the eligible patron is notified via one or more means, such as announcement, manually, wireless device, mobile telephone, bulletin board, and/or other means. The patron is then notified and presented with the option of moving for free, use of award points, additional money to the theater and/or patron to whose seat is being provided, or other predetermined criteria to obtain the seat. The patron, of course has the option to decline, and if so, the process continues and returns to the re-allocation process to attempt to locate another possible patron.

If the patron accepts, payment of money or other means may be effectuated on the spot via the wireless device, credit card, debit card, points, and the like, and the patron may now move to the 5 other seat. The patron's seat may then optionally be made available as an empty seat to the reallocation process. The process then optionally determines whether there have been additional vacancies, for example, just prior to the event, 10 during the event or as a result of predetermined processes, and empties and/or makes available these additional seats for the event. For example, if standard smart card, standard scanner, standard bluetooth, wireless, or other technology 15 is used in the present invention, additional seats may be made available as patrons leave the event early, for example if diverted for an urgent business meeting, and the like. These additional seats may provide additional opportunities for 20 patron satisfaction, revenue (theater or patrons), advertising, advertising sponsorship for banner advertising on the wireless device and/or in the theater, and the like. Thus, scanners posted at strategic locations, for example, at the exit of 25 the theater or stadium will confirm that the patron is leaving, and optionally prompt the

patron to confirm that they do not plan on returning. This embodiment may optionally be used in other embodiments of the present invention, and vice versa.

5

If a predetermined period of time has not expired, then the re-allocation process may be run again to optionally continuously re-allocate seats while advantageously including the additional 10 seats. The patron may optionally store the upgraded ticket on a wireless device for proof of entrance to the better seating area. Optionally, the seat and/or row and/or section, includes a separate reader device to receive optionally the 15 original ticket that is now re-allocated to a better seat, or a new ticket that may optionally be received by the patron via the wireless device and/or manually via a worker in the theater or stadium.

20

In accordance with the invention, as indicated above, when the patron registers for ticket re-allocation and/or purchase, via for example the Internet, the patron may enter payment

information at that time. Accordingly, when the patron accepts the ticket re-allocation and/or purchase, the system can automatically charge the patron without the patron actually
5 submitting/typing, for example, credit card information over a wireless device. The tickets of the present invention may be used to re-allocate patrons that are sitting in the stadium and/or patrons that may be in the vicinity of the stadium
10 but were unable to get seats. Since the present invention re-allocates and/or sells tickets very near to game time in accordance with one embodiment, the patron must be in the general vicinity of the stadium to take advantage of this
15 embodiment of the invention.

As described above, the patron may be transmitted, for example, emailed, the actual ticket or a confirmation number that they can use
20 proceed to their seat and/or re-allocated seat. An optional graphical display via, for example, GPS, as discussed above may be used to guide the patron to the new location upon acceptance, as well as to help the patron decide whether to purchase the
25 ticket and/or upgrade. For example, a graphical

map of the stadium and/or textual description may be provided to the patron to help the patron decide the quality of the upgrade and whether to accept.

5 In one alternative embodiment, if the patron that has their ticket re-allocated in error, e.g., because the patron did not show up to the event based on the predetermined criteria but the patron was still planning on attending because
10 they forgot about their seat being re-allocated, the system can re-allocate seats immediately upon the checking in of the patron and notify them that their seats have changed because they are late. In this situation, the stadium/venue might decide to
15 further upgrade the patrons because of the mistake.

20 In accordance with one embodiment of the present invention, the process of the present invention specifically reserves seats of the highest or very high rating that are considered preferred, in the event a patron's seat is re-allocated prematurely or erroneously. In this situation, the patron who has had their seat re-
25 allocated because they will likely receive an even

better seat as a result of the mistaken (stadium or patron) or premature seat re-allocation.

In another embodiment of the present
5 invention, as patrons are entering the venue or stadium, they are provided advantageously with a map of the stadium so patrons can analyze the potential upgrade to make a decision whether the upgraded seats are sufficiently good or of value
10 to warrant the patron moving and/or paying for the additional upgrade. By handing the patron the map of the stadium, the process of the the present invention is not required to transmit a detailed schematic to the patron's wireless device which
15 would not normally be able to effectively permit the patron to evaluate the proposed upgrade seats. The map that is handed out may optionally include information for patrons on where to register for the upgrade and/or additional advertisement
20 opportunities.

In one alternative embodiment, the patron that has purchased the ticket, for example, a season ticket holder, may advise the stadium that

for a particular game, set of games or all games, they do not want their seats to be re-allocated, and perhaps, an additional fee is assessed for this type of patron. If the stadium provides the 5 ability for the patron to selectively opt out of the seat re-allocation, the patron can, for example, connect to the system via the Internet, public switched telephone network, cellular network, and the like, and notify the system that 10 they do not want their ticket re-allocated, for example, because they are coming late to the event. Other means of notifying the system and/or other reasons may be utilized in connection with 15 the present invention.

15

In another alternative embodiment, the system provides patrons the ability to individually select when their tickets may be re-allocated. For example, one patron may prefer to 20 only give up their ticket if they are late to the game by 15 minutes, while another patron may be willing to give up their ticket if they have not arrived 15 minutes before the game. In alternative embodiments, the stadium may provide incentives 25 for the patron to have their ticket re-allocated

prior to the game because it increases the stadium's chances of re-allocating/re-selling the ticket.

5 The present invention has particular benefits for stadiums that are constantly sold out, but where patrons habitually do not show up. For example, many stadiums are sold out by season ticket holders that do not show up to the game on a regular basis. The present invention permits these tickets to be re-allocated in accordance with, for example, predetermined algorithms, and provide additional patrons a better experience. In addition, the present invention has the benefit of moving the patrons closer to the action/players, and therefore, the ability to support and/or motivate the players to play well. In additional alternative embodiments, the stadium may provide the original ticket holder a portion of the 10 proceeds as a result of the ticket re-allocation, thereby providing additional incentive to the ticket holder to permit their ticket to be re-allocated (when this is a voluntary program in the stadium). The stadium may then keep a percentage, 15 portion or service fee from the resale and/or re- 20 25

allocation of the ticket. Of course, the above embodiment may further apply to yet another embodiment where the stadium does not offer the upgrade to patrons sitting in the stadium, but to 5 patrons that, for example, may be in the geographic vicinity of the game but that may not currently have any tickets or that may be willing to purchase the tickets when availability is determined and to travel to the event.

10

In an alternative embodiment, the system determines priority of re-allocation of seats based first upon patrons that have seats that may also be re-allocated. That is, the systems 15 attempts to maximize the number of re-allocations by prioritizing the re-allocation based upon seats that may be re-allocated after already being re-allocated. For example, if front row seats in a stadium are available to be re-allocated, in this 20 alternative embodiment, patrons that are in the next closest section for example on the field level would be upgraded first to those seats. Then, patrons with less preferred seats, for example, in the upper deck would be re-allocated 25 to the seats that have now become available from

the patrons that have been upgraded to the front row. Thus, using this alternative priority scheme, the present invention maximizes the re-allocation numbers. Of course, this priority algorithm may be
5 combined with additional factors, for example, relating to subscriber/patron value. As described above, additional factors may be utilized in the algorithm to determine the subscriber or set of subscribers to offer the upgrade.

10 In alternative embodiments, patrons in the vicinity of the upgraded and re-allocated patrons may optionally rate the upgraded patron, for example, for appropriate behavior, wearing of excessively large hats, drunkenness behavior, and
15 the like. These ratings may then be taken into account in the re-allocation algorithm for future upgrades to the patron.

20 In alternative embodiments, the patrons eligible for the upgrade may be notified using standard email communications over a wireless device, mobile telephone, and/or other standard communication means. For example, standard text-to-voice and/or voice-to-text communications may
25 be used to contact the patron to evaluate whether

an upgrade will be accepted and to actually accept the upgrade.

In another embodiment of the invention, as indicated above, when the patron registers for ticket re-allocation and/or purchase, via for example the Internet, the patron may enter payment information at that time. Accordingly, when the patron accepts the ticket re-allocation and/or purchase, the system can automatically charge the patron without the patron actually submitting/typing, for example, credit card information over a wireless device. The tickets of the present invention may be used to re-allocate patrons that are sitting in the stadium and/or patrons that have already purchased tickets in the vicinity of the stadium but were unable to get seats and/or may be in the vicinity of the stadium but were unable to get seats. Since the present invention re-allocates and/or sells tickets at any time prior to and/or after beginning of game time in accordance with one embodiment, the patron may be in the general vicinity of the stadium to take advantage of this embodiment of the invention or even at any location when being offered upgrades

and/or seats well in advance of the game. For example, the present invention can upgrade or sell tickets to patrons well in advance of the game since it advantageously is permitted or has the authority to resell tickets either via ticket holders that do not show up during the game and/or, for example, season ticket holders that have authorized the stadium in advance to resell their tickets based on predetermined criteria, for example, when the season ticket holder notifies the stadium that they will not be present at next weeks game.

In one optional embodiment of the invention, the patron presents the usher with the confirmation number which the usher can enter into a wireless device using a local or private wireless network, or can simply use a walkie talkie or telephone to call the dispatcher to confirm the upgrade and/or new seats using the customer provided confirmation number. The dispatcher will have access to the system to enter the confirmation number to confirm the validity of the upgrade. Alternatively, a patron will retain their old ticket. The patron will give in the old

ticket to the usher which is scanned or barcoded by the usher for immediate identification of new seats and used in place of, or in addition to, confirmation number.

5

Of course, the confirmation may optionally be made via customer name with an appropriate identification card or other information. Further, alternative methods may be used to verify that the confirmation number and/or ticket being used by the patron is valid. For example, the patron may be equipped with a printing device associated with the wireless device or download an actual ticket on line from home prior to the game for the new ticket or upgrade. Alternatively, the patron may be equipped with an identifier card, optionally including a bar code with a unique identifier relating to the patron's account information and profile that can be scanned for additional convenience. Alternatively, a wireless device may be used to securely store this type of identification and/or account information.

In at least one alternative embodiment of the invention, the patron may comprise optionally a corporate account that has a number of tickets, for example, season tickets. In this embodiment, 5 the corporate account may have associated therewith a plurality of email addresses or other communication addresses to transmit the seat or upgrade offer to a number of potential patrons that may rotate their attendance at the games. In 10 accordance with this optional embodiment, multiple emails can be stored for a single user/corporate account, and the system may transmit individual messages to all email addresses, or may only transmit messages to individual patrons for 15 corporate account that individually advise the system that they are associated with a particular ticket/bar code for a particular game and will be/are present at a particular game.

In an alternative embodiment, patrons may 20 enter the stadium and subsequently inform the system that they are present and interested in an upgrade via a kiosk where the patron can scan a bar code and enter their customer number to be eligible for upgrades during the game. The system 25 is then able to transmit a message to the customer, assuming that the customer has pre-

registered with the system with the appropriate contact information. Alternatively, or in addition to individual use of a kiosk(s), the customer sales office may have a kiosk or additional functionality to enter the customer name and/or customer account and scan in the bar coded ticket on the spot to register each patron as they enter the stadium or venue.

10 As described above, the patron may be transmitted, for example, emailed, the actual ticket or a confirmation number that they can use proceed to their seat and/or re-allocated seat. An optional graphical display via, for example, GPS, 15 as discussed above may be used to guide the patron to the new location upon acceptance, as well as to help the patron decide whether to purchase the ticket and/or upgrade. For example, a graphical map of the stadium and/or textual description may 20 be provided to the patron upon entry in the stadium to help the patron decide the quality of the upgrade and whether to accept when an offer is received by the patron at a predetermined time. The graphical map may comprise a small booklet

with a map of the stadium showing seat locations, and optionally a game schedule.

The present invention has particular
5 benefits for stadiums that are constantly sold
out, but where patrons habitually do not show up.
For example, many stadiums are sold out by season
ticket holders that do not show up to the game on
a regular basis. The present invention permits
10 these tickets to be re-allocated in accordance
with, for example, predetermined algorithms, and
provides additional patrons a better experience.
In addition, the present invention has the benefit
of moving the patrons closer to the
15 action/players, and therefore, the ability to
support and/or motivate the players to play well.
In additional alternative embodiments, the stadium
may provide the original ticket holder a portion
of the proceeds as a result of the ticket re-
20 allocation, thereby providing additional incentive
to the ticket holder to permit their ticket to be
re-allocated (when this is a voluntary program in
the stadium). The stadium may then keep a
percentage, portion or service fee from the resale
25 and/or re-allocation of the ticket. Of course, the

above embodiment may further apply to yet another embodiment where the stadium does not offer the upgrade to patrons sitting in the stadium, but to patrons that, for example, may be in the
5 geographic vicinity of the game but that may not currently have any tickets or that may be willing to purchase the tickets when availability is determined and to travel to the event.

10 In alternative embodiments, patrons in the vicinity of the upgraded and re-allocated patrons may optionally be eligible for a dating or matching service where patrons register and provide profile information to the system and/or
15 through a third service provider dating service. Once the system knows that the patrons will be coming to the game and/or have actually checked in to the stadium, the system can then arrange for the two, four, etc. patrons to meet each other by
20 allocating and/or re-allocating seats to the patrons together. Thus, based on profile information, customer request and availability, the system is able to upgrade or sell tickets to patrons to maximize their chances of meeting
25 someone at the game. This optional feature

provides significant potential enjoyment for the patrons participating in this dating or connection program. In accordance with this embodiment, one possible sequence of acceptance steps involves

5 profile matching the two patrons (or groups of patrons) based on predetermined profile information; transmitting a first message to the first patron regarding availability of the second patron and requesting a conditional acceptance

10 form the first patron; transmitting a second message to the second patron indicating that the first patron has conditionally accepted and request the second patron to accept; and when the second patron accepts before the first patron has

15 rescinded the conditional acceptance, finalizing the upgrade and/or seat allocation for the first and second patrons. This embodiment of the invention is a complete reverse from typical dating and/or matchmaking services which attempt

20 to develop detailed algorithms for the matching process because of the significant decision that exists in determining who to spend valuable time with. In accordance with the invention, patrons are already present at the game, and therefore,

25 half or more than half the effort is already done. The remainder is to actually meet the other person

which can be accomplished with profile criteria, whether or not the algorithms are very sophisticated.

5 In one embodiment, the patrons that are being matched have their original seats maintained and not made available for other upgrades in the event the matching does not work out early on. In this embodiment, one or both the patrons can
10 return to their original seat. Hopefully, there will not be a significant argument of who would need to return to their original seat if an upgrade is actually performed. In addition, in accordance with this embodiment, the seats that
15 are selected do not necessarily have to be better seats in the classical sense. That is, seats further away from other ticket holders might be considered preferred when matching two individuals for the first time. Alternatively, couple that
20 would prefer a little more privacy or quieter game might request to be moved to a more isolated area. Alternatively, families with small children might prefer to be moved to a less busy area as well during the game where the children might be able
25 to freely move around. All these scenarios and/or

alternatives are possible in view of the present invention. The advantage of performing a match in a public setting is that the patrons do not have to worry about leaving or ending the date, and
5 also do not have to worry that the other person will have their home address.

In an alternative embodiment of the dating/matching service of the present invention,
10 a dating/matching service is provided to patrons that enter a predetermined location and/or geographic area. The patron can enter physically the location and/or geographic and register, for example, by manually entering data in a computer,
15 transmitting information relating to the registration of the patron via infrared, Bluetooth and/or other technology, and/or automatically register via use of GPS information associated with or used in a wireless device associated with
20 the patron. For example, patrons that enter an establishment can register upon entry that they are now present within the general location of the establishment. Upon registry, the system can implement various matching algorithms currently in
25 use by various matching services in connection

with other patrons that have also registered at the same location and/or a location in the general area that the original patron registered.

According to this embodiment, the system

5 advantageously matches individuals that have registered in the same geographic location and/or geographic locations that are in the same general area where the patrons can walk and/or drive to meet each other in the same general time frame,
10 such as the same evening, same afternoon same day, and the like.

In addition, this feature also optionally permits the patrons that have participated in the
15 program to rate one another for future dates. For example, one patron can rate the conversational benefits of the second patron, the appearance of the second patron, the overall short term versus long terms relationship goals of the patron, and
20 the like. These ratings may then be taken into account in the algorithm for future seat assignments, re-allocations and/or upgrades in the future for the first and second patrons, and all other patrons will now benefit with the additional
25 profile information of the first and second

patrons. The matching service may be for amusement or work related networking purposes, for example, to meet an executive that the patron currently works with or wishes to work with/sell in the future.

5

10

15

20

25

In an alternative embodiment of the dating/matching service of the present invention, a dating/matching service is provided to patrons that enter a predetermined location and/or geographic area. The patron can enter physically the location and/or geographic and register, for example, by manually entering data in a computer, transmitting information relating to the registration of the patron via infrared, Bluetooth and/or other technology, and/or automatically register via use of GPS information associated with or used in a wireless device associated with the patron. For example, patrons that enter an establishment can register upon entry that they are now present within the general location of the establishment. Upon registry, the system can implement various matching algorithms currently in use by various matching services in connection with other patrons that have also registered at

the same location and/or a location in the general area that the original patron registered.

According to this embodiment, the system advantageously matches individuals that have registered in the same geographic location and/or geographic locations that are in the same general area where the patrons can walk and/or drive to meet each other in the same general time frame, such as the same evening, same afternoon same day, and the like. In addition, the system advantageously and optionally provides the feature of allowing patrons to text message one another directly, and/or exchange pictures via wireless email, text messaging, and other wireless devices that provide the standard capability of exchanging pictures, such as T Mobile and/or Sprint.

In alternative embodiments, the ticket holder can call in via a voice to text message, text message and/or email and let the stadium know early that they are not coming. In this manner the ticket holder obtains the convenience of the stadium or venue reselling their tickets in advance, thereby providing the venue with

additional time to maximize the resale of the ticket.

In alternative embodiments, when the
5 patron enters the stadium, they have their ticket
barcoded or other device that detects their
presence can be used such as infrared, Bluetooth,
etc., and then they can become eligible for an
upgrade. The patron can register in advance that
10 they want to receive upgrades by providing their
name, message address, e.g., email, telephone text
message address, etc., and optionally their credit
card or other payment mechanism for upgrades that
actually cost money as opposed to free upgrades.
15 In alternative embodiments, the patron can
register at the ticket booth when purchasing their
original ticket. In this scenario, the stadium
representative can enter this information on
behalf of, and with the permission of, the patron
20 since the patron may already be providing their
credit card, debit card, etc. to purchase the
original tickets. Alternatively or in addition, a
kiosk may be provided where the patron can enter
their original ticket, e.g., scan in their
25 original ticket and provide their name and text

message information in the stadium to register for a one time upgrade for the game after purchasing, for example, a regular admission ticket.

5 In alternative embodiments, an usher can verify that the patron should be upgraded by the patron providing the confirmation number that may be transmitted in real-time by the system, and/or by the patron using their original confirmation
10 number or original ticket with barcode or other identification means, such as a smart card, infrared reader, etc. that represents original ticket and presenting same to the user. The usher then needs only to scan in the original ticket and
15 the system will verify whether the patron associated with the original ticket is valid and whether the upgrade is valid.

20 In alternative embodiments, a warning message may be sent to the ticket holder that has not shown up to game warning them that if they do not respond within a certain time period that their seat will be re-allocated or re-assigned to another patron. Similarly, a release message may

be sent to the ticket holder after their seat has actually been released and/or re-allocated, thereby notifying the patron that if they change their mind in attending the game, they will have 5 to obtain an additional ticket. In alternative embodiments, the ticket holder that has their seat released and re-allocated can be themselves re-allocated a similar, worse or better seat, depending on, for example, their subscriber value 10 and/or other criteria. For example, if the patron is provided a better seat, this will encourage them to more readily give up their seats in the future even if they are attending the game. On the other hand, if the patron is provided a worse 15 seat, then this encourages them not to artificially give up or have their seat released when attending the game. Accordingly, the present invention is designed to deal with various behavioral patterns of specific ticket holders, 20 and may optionally and advantageously be a ticket holder specific with respect to various criteria for re-assigning, releasing, selling and/or re-allocating tickets.

5

In alternative embodiments, the system transmits to the ticket holder a welcome message after being upgraded and after having been moved to a new upgraded seat location. In one embodiment, the system identifies that the patron has been successfully upgraded after the patron provides the usher with a confirmation number or original ticket, which is then verified by the usher and system.

10

15

20

25

In alternative embodiments, the system, after having identified which patrons have checked into the stadium and/or have been upgraded, transmits a trivia question and/or additional advertisements to all patrons attending the game. In alternative embodiments, the information is transmitted to both patrons that are attending the game and additional patrons that have registered in the past to receive information but that are not attending the game. The participants can, for example, answer trivia questions and respond with their wireless device. Depending on whether the patron is attending the game or not, the system may determine to offer or deal with each of the patrons differently. For example, for patrons at

the game, winners may be successively determined and narrowed, as patrons successfully and unsuccessfully answer questions, round after round of questions in a "spelling bee" format. For
5 patrons that are not attending the game, winners may be declared, or statistics provided to the broadcast station that can be aired on television. In yet additional alternative embodiments, instead of transmitting information/questions to the
10 patrons via the wireless device, the information/questions are displayed on the stadium billboard for patrons at the game and/or on television for patrons that are watching the game on television. The patron can then merely respond via the device, e.g., the telephone accordingly
15 via a voice-to-text system or via other mobile devices via text messaging.

In alternative embodiments, the
20 present invention provides the advantage of additional advertising sponsorship to the venue. For example, in one embodiment, the venue is partitioned into different locations that may be assigned to different sponsors. In one embodiment,
25 the sponsor that provides the most value may be

assigned a certain number of premium seats that
are not available to other sponsors.

For example, the sponsor may offer a
5 discount on the upgrade if you are a Verizon or
Verizon Wireless customer or they credit your cell
account for each seat upgrade or you get say 30
free minutes, etc. In alternative embodiments, the
present invention provides the advantage of one
10 wireless provider to advertise on another wireless
providers mobile phone or wireless device. For
example, if Verizon Wireless is a sponsor of the
upgrade system for a particular stadium, the
present invention will still work with, for
15 example, AT&T, SPRINT, and CINGULAR customers. An
advertisement message sent with the upgrade offer
may read on the AT&T phone, "brought to you by
Verizon Wireless." In an alternative embodiment of
the present invention, text messaging is
20 optionally used for mobile phones to perform the
message communication of the present invention.
The user is only required, in one embodiment, to
reply or respond with a "Yes" to accept the
upgrade offer since the user has advantageously
25 pre-registered with the system, thereby minimizing
the required communication/input by the user. In

an alternative embodiment, the user, instead of pre-registering with the system, is charged on their wireless or even regular telephone number bill when they accept the upgrade offer. Thus, the 5 wireless system that either administers the user's regular or wireless account or the upgrade sponsor may be responsible for actually billing the customer in this alternative embodiment.

10 In the alternative embodiment when text messaging is optionally used alone or in combination with other communication methods, the system provides the additional advantage of maximizing bandwidth usage by not requiring use of 15 bandwidth on the wireless voice system, thereby maximizing system resources.

20 In another alternative embodiment, the present invention optionally and advantageously provides a security and/or safety feature in the event of, for example, a minor event where a parent gets separated from a child, a disaster or other event that might require evacuation of the stadium. In one embodiment, the 25 person needing help provides their name to an attendant that can search the system for the

contact information of their companion/parent. The system can thereafter send an email and/or text message to the companion/parent regarding the status of that person and provide instructions for meeting that person or arranging help, authorizing medical procedures, and the like. In another embodiment, the person requiring help, e.g., a child provides the attendant or kiosk with their ticket which can, e.g., scan the bar code or other reader system. The system can either automatically provide a text message to the parent who can then reply to the child/attendant via the kiosk to meet the child.

15 Alternatively, the parent can be instructed to meet the child at a predetermined location, and to stop looking for the child because the child was found. Thus, for this example, the person who is lost or separated from
20 their party can notify security or access a kiosk. Security can, for example, notify the parent that child is in safe custody, and should not search the stadium, and therefore, meet outside stadium in a pre-specified safe place.

25

In an alternative embodiment, if a child/person is separated, the security guard/kiosk can arrange the best place to meet, either in or outside the stadium, together based on an optional global positioning system (GPS). In addition, the party with the mobile device can be provided directions on where to go to meet their party from who they have been separated.

10 In an alternative embodiment, the present invention may also be used in a security, defense and/or safety setting to direct patrons in a stadium for an orderly evacuation or notify patrons regarding status of a safety related event

15 via, for example, a broadcast message including text message, email and the like. In this manner, system communication resources may be most efficiently utilized by not over-utilizing the system via voice communication, unless completely necessary. For example, the message can be broadcast in the event of an impending hurricane. In this situation, patrons in different sections get different messages, for example, to exit the stadium out of gates/exits that are either less occupied or closest to the section the patrons are sitting in. Advantageously, the present invention

20

25

has the patrons contact information, including
optionally and advantageously text messaging, that
can be broadcast or sent to different patrons. The
advantage of text messaging is that the bandwidth
5 is more efficiently used in the event of an
emergency, and there are no busy signals as in a
voice network. Further, the message is send, and
if the network is at capacity, the system can
automatically resend or the message will be placed
10 in queue and sent as soon as capacity becomes
available.

In another alternative embodiment of
the invention, the security bracelets of the
15 present invention can be required to be displayed
and read on exit from a venue when a parent has
reported that a child has been separated. In this
event, all patrons are checked when they exit the
stadium. The parent can report the specific seat
20 that the child was sitting in, and then on exit,
all patrons are checked. If the specific seat
appears or if a child attempts to leave without
scanning or presenting their bracelet, then that
child can be taken into custody until their parent
25 arrives, thereby possibly preventing abduction.

For instance, in sporting venues the bracelet ticket includes the machine readable information that comprises at least one of a bar code and radio frequency identifier used for security check in, and optionally check out. In this manner, the standard reading machines that can scan the bar code or RFID information can keep track of people that have checked into the sporting event and/or venue. Advantageously, the machine readable information on the bracelet can also be used by the venue in the event the patrons seat assignment is modified, for example, via an electronic ticket exchange or upgrade program. In this embodiment, the visible indicia are no longer valid for the actual seating that may be dynamically changed and only represents optionally an initial seat assignment. However, the machine readable information may be used as a code to reference the specific patron and assign that patron a new seat. Thus, when the ticket reader scans the ticket and actually identifies, for example, the bar code, this information can be used to reference the patron, update and/or confirm the patron's current seat via the reader used, for example, by ushers in the venue, kiosk, entrance to the venue, and the like.

In an alternative embodiment, the security bracelets of the present invention can be required to be displayed and read on exit from a venue when 5 a parent has reported that a child has been separated. In this event, all patrons are checked when they exit the stadium. The parent can report the specific seat that the child was sitting in, and then on exit, all patrons are checked. If the 10 specific seat appears or if a child attempts to leave without scanning or presenting their bracelet, then that child can be taken into custody until their parent arrives, thereby possibly preventing abduction. This information, 15 as previously mentioned, may be visually cognizable for the patron and in combination, readable by electronic means if the bracelet includes a magnetic strip, bar code imprinting, or RF chip.

20

In an alternative embodiment of the present invention, the security bracelet and ticket combination of the present invention advantageously includes a bar code or other 25 machine readable information such as a RFID device. When, for example, a child is separated

form their parent, the parent can notify security and the seat number associated with the child. If the child attempts to leave with their bar code/identifier, the system detects the bar code/identifier as either being valid and identifying the child that is missing or being invalid and raising another red flag. In an alternative embodiment, the bar codes/identifiers associated between children and adults correspond such that the child identifier must be within a predetermined time and/or number of checking out identifiers from/within the adult identifier. If this does not occur, the system determines that the child is leaving without their parent, and possibly being abducted.

In an alternative embodiment, the system links one or more tickets/identifiers together and requires the tickets/identifiers to exit the venue or event within a predetermined time period from one another and/or within a predetermined number of tickets/identifiers that have exited the venue and/or event. In the event that one ticket/identifier exits the venue or event and the associated identifier does not, then an alarm or

other indictor occurs, and the attendants will detain the patrons that have initiated the alarm to for security purposes.

5 In an alternative embodiment, the tickets are advantageously coded with designations such as adult, child and the like. In the event a child ticket/identifier exits the stadium before the associated adult and/or more than a predetermined time period and/or number of patrons exiting, the system can initiate an alarm so that an attendant can determine if a child has exited the venue or event without their parent or with a wrong parent potentially averting a kidnapping. In this

10 embodiment, an additional combination is the use of the standard fast pass feature, for example, at theme parks, and the like, where the venue records predetermined events that the user of the card enters in a faster line. In this embodiment, if a

15 child ticket/identifier is not associated with a parent ticket/identifier, for example, as described above, the child may be denied entry into the event or venue if not accompanied by their parent. In alternative embodiments, the

20 venue/event sponsor or organizer associates

25

5 tickets upon request from the patron. In addition, in another alternative embodiment, a kiosk is provided inside and/or outside the venue for, for example, parents to register their tickets and have them associated with their children's tickets to prevent the child from exiting the venue without them, for example, as described above.

10 In an alternative embodiment of the present invention, the system and method are adapted to utilize any type of wireless device with different interface and communication options. For example, different wireless devices have different constraints with respect to the interface, e.g., 15 number of characters, how the subject and body of the messages are used/communicated, etc. Accordingly, the present invention optionally provides a protocol conversion system depending on the type of wireless device and the wireless 20 device constraints, including message constraints and/or the wireless communication system. In alternative embodiments, the system determines the wireless device provider based on the address received from the wireless device, and is able to 25 automatically determine the type of message and/or

message constraints and transmission constraints associated therewith based for example, on real-time information or on pre-determined stored information on the device and/or communication system. Accordingly, a protocol conversion system for different wireless devices is provided by the present invention for sending and/or receiving messages, such as upgrade offers, responses, acceptances, and the like, from a variety of different users/mobile devices and wireless systems.

In another alternative embodiment of the present invention, a security bracelet is advantageously utilized, for example, such as the security bracelet disclosed in U.S. application number 10/680,207, filed on October 8, 2003, to Abraham I. Reifer, et al., and incorporated herein by reference, in the event of a reported event, security breach, abduction, and the like. In this embodiment, all patrons exiting the stadium must show their ticket and/or identifier so that the venue can check all patrons out of the stadium. Thus, for example, if two kidnappers come in the stadium, and want to use one bracelet for a child, the second kidnapper will be stranded in the stadium. In addition, if one kidnapper buys two

tickets, then upon exit with the child and the additional ticket, a barcode/identifier will be exiting without ever having checked in, and then the alarm will go off as well.

5

In another alternative embodiment, the present invention provides a broadcast message to warn patrons of an event, such as an advertisement, sale and/or even a weather related event such as a hurricane that might require the venue to be evacuated. Advantageously, in at least one embodiment, the broadcast message comprises standard text messaging that optimizes or better utilizes capacity from the communication system.

10 Thus, when using text messaging capabilities, the present invention efficiently transmits text messages to numerous subscribers regarding, for example, exit information, contacting and/or meeting additional parties that have been separated, and the like.

15

20

In an alternative embodiment of the present invention, the present invention optionally provides the capability to penetrate into secondary market with season ticket holders selling ahead of time the games they will not be

25

attending. For example, the present invention
optionally provides the feature for the season
ticket holder and/or general ticket purchaser the
ability to view in advance of the season and/or
5 game the schedule, and to alert the venue and/or
stadium of games and/or events they will not be
attending, thereby permitting the stadium/venue to
attempt to resell the tickets to other patrons.
For example, in one embodiment of the invention,
10 the patron is provided with a monthly schedule
listing the events that may be attended. The
patron, such as a season ticket holder, may then
click or place an indicator on all games they will
not be attending for the season in advance,
15 thereby providing the stadium with the ability to
resell tickets well in advance of the event. Once
the patron completes identifying games that will
not be attended, the system then compiles a list
and transmits the list to the patron for an
optional confirmation. This list is then used by
20 the system to release seats well in advance of the
game. In an alternative embodiment of the
invention, registered users of the system for, for
example, upgrades, may also be notified of seat
availability for sales prior to the game/event. In
25 an alternative of this embodiment, registered

users may receive text messages, emails, and the like, notifying them advantageously of the availability of seats that heretofore have never been easily available to the public for sale,
5 thereby allowing the venue to participate in secondary market ticket sales.

In one alternative embodiment of the present invention, the system/process of the
10 present invention provides or operates as a middle person/broker between the ticket holder that is returning tickets to the venue, such as the season ticket holder, and a ticket sales system and/or company, such as tickets.com, by notifying the
15 tickets company of the newly available seats via notification by the ticket holder, such as the season ticket holder of season ticket games not being attended.

20 In one alternative embodiment of the invention, the system and/or process transmits text messages, emails and the like, to offer tickets and/or seats and/or admittance to subscribers for events and/or games with empty
25 seats even before game. Thus, the present invention allows the venue to participate in the

secondary ticket sales market and the upgrade market, thereby increasing revenue and fan loyalty.

5 Of course, all of the embodiments of the present invention may be used for any reserved seating event, and/or venue that require tickets for entry thereof.

10 In another alternative embodiment of the present invention, the use of machine readable identifiers provides advantages for, for example, the upgrade program or ticket exchange of the present invention. For example, when the upgrade, 15 re-allocation and/or electronic ticket is issued, the machine readable identifier, for example, the bar code, on the original ticket is invalidated, thereby preventing use of the invalidated ticket. Accordingly, when a new ticket holder purchases 20 the ticket form the season ticket holder, the new purchaser will be issued a new machine readable identifier, and optionally a new paper ticket. The present invention advantageously is able to handle the issuance of a new ticket and invalidates the old ticket and optionally the old identifier that 25 has, for example, been returned by the season

ticket holder, thereby providing dynamic ticketing capability.

In an alternative embodiment of the present invention, the new patron obtains a new identifier such as a barcode, the old bar code of, for example, the season ticket holder is invalidated. In one embodiment of the invention, season ticket holders are offered to opt in the upgrade process. Various commercial incentives are possible for the season ticket holder to opt in the upgrade process, such as monetary compensation when their ticket is used for an upgrade and/or resold whether they express their intention not to go to the game prior to the game, and the like.

Alternatively, season ticket holders may be offered that the cost of their season tickets will, for example, remain the same as the previous year or be reduced if they participate in the program. Therefore, the combination season ticket trade-in and upgrade program in one embodiment of the invention will be beneficial to season ticket holders by allowing them to trade when they already know that they have no intention of attending a game, and allow the season ticket holder to recoup some cost of the season tickets

if they do not attend and their ticket is used as an upgrade. In addition, additional patrons of the event and/or sports team are permitted to attend the game in locations/seats that they might never
5 have been able to obtain access to. Further, the venue/stadium/team maximize revenues by being able to place tickets on the secondary market when the ticket holder notifies the venue early enough that they are not attending the event, the venue also
10 obtains additional revenue from upgrades when tickets are upgraded, and the venue obtains additional fan loyalty.

In another embodiment of the present
15 invention, the system provides the ability to advertise via email, text messaging, and the like, for one wireless carrier on the wireless device that is using another wireless carrier. Since the user of the wireless device has requested the
20 service, the user appropriately receives the communication from the ticketing system of the present invention, and therefore, also appropriately received the advertisement from the wireless carrier that is different than the
25 wireless carrier that the user of the wireless may be using at that time.

In another alternative embodiment of the present invention, offers to purchase seats either during the game or even well in advance of the game are "pushed" or transmitted out to registered users that have supplied their wireless and/or Internet addresses. For example, patrons can register in advance for the upgrade and/or regular ticket offers to purchase admittance via various methods including the Internet. When seats band/or admittance becomes available, a broadcast message or other standard messages may be transmitted to the registered patrons to notify them of the seat availability. Thus, seat offers are "pushed" to registered users that have requested this service advantageously to a wireless device and/or other address including standard telephone communication, as well as additional optional advertisements. The system, in one alternative embodiment, provides the user the option when registering to accept certain types of advertisements to be received on their wireless device via email and/or text messaging. In other embodiments, the user does not have the option of which advertisements to receive.

Advantageously, in accordance with one alternative embodiment of the present invention, if a patron decides to attend an event such as a sporting event when the patron does not have time to wait to receive paper tickets (e.g., the patron is visiting in another city/location and does not have time to wait to receive tickets via mail and is on the go), the system of the present invention transmits a ticket to the patron via, for example, 5 a wireless communication system and/or other standard electronic communication system such as the Internet, and the patron can present their ticket, for example, on their wireless device and show up to game.

10

15

In another embodiment of the present invention, an interactive patron entertainment system is provided where trivia questions, for example multiple choice questions on a variety of topics, are sent to the patron via email and/or text messaging and/or displayed on the scoreboard with an address to respond, such as 20 trivia@utixx.com. Patrons then text message and/or email and/or answer questions via voice-to-text messaging their answers. The system can then 25 display the overall number of answers that are

correct and incorrect, display bar graphs and the like to the event patrons by displaying on a display, such as the scoreboard of a sporting event. The system then identifies the patrons that have correctly answered the question and can then send new questions to be answered just to the previously correct patrons, thereby further narrowing the group of patrons. Successive questions can be sent, including questions that are not multiple choice and that require actual text to be entered via standard wireless device interfaces, and patrons are successively eliminated until a single or sub-set of patrons are determined to be the winners. Advantageously, the present invention provides entertainment to the patrons at the event by optionally providing successive questions throughout an event. In another alternative embodiment, simultaneously with the questions to the patrons present at the event, the present invention is also capable of sending the questions to patrons that have registered with the system, but are not at the event, for example, at home watching on the television or simply not currently involved in the game. The present invention is able to transmit the same and/or different questions to those

registered users as well. Further, in another alternative embodiment of the present invention, viewers watching the television, for example the same event that patrons are attending, may be presented with the same and/or different questions as well as an address and/or telephone number to call and provide their answer which they can compete with patrons at the event or can be used to provide a separate comparison of the answers and/or separate winners to the contest. In this embodiment, for example, questions may be displayed on the television, Internet website, and the like, during the event, and viewers watching the television may respond to the questions as described above. The system can optionally compare the percentage of correct answers between the television viewers and the patrons at the event, and/or provide separate awards or a single award to the winners from the pool of television/Internet viewers and/or patrons in the event.

In another alternative embodiment of the present invention, the system uses a seat database to determine which of the reserved seats are currently in use. The system may integrate with

the seat database system of a venue and/or stadium or optionally be used in parallel with the seat venue/stadium database. For example, prior to the event, the system may utilize the seat database of
5 the venue to determine available seating and patrons that do not show up after a predetermined period of time. Alternatively, the present invention can operate using a separate database from the event/venue by copying or building a
10 separate database used for the ticketing and/or upgrading according to the present invention. In this alternative, as patrons enter the venue, they are checked in directly to this separate database. At the time of the event, the system will be able
15 to check-in patrons using either the identification system, e.g., bar code scanner, of the event or venue, or provide a separate identification system.

20 In alternative embodiments of the invention, the patron that knows they are attending the game but is going to be late can send in a HOLD message even prior to being provided a warning message that their seats are to
25 be released if the patron does not respond to the message with the HOLD request. That is, in this